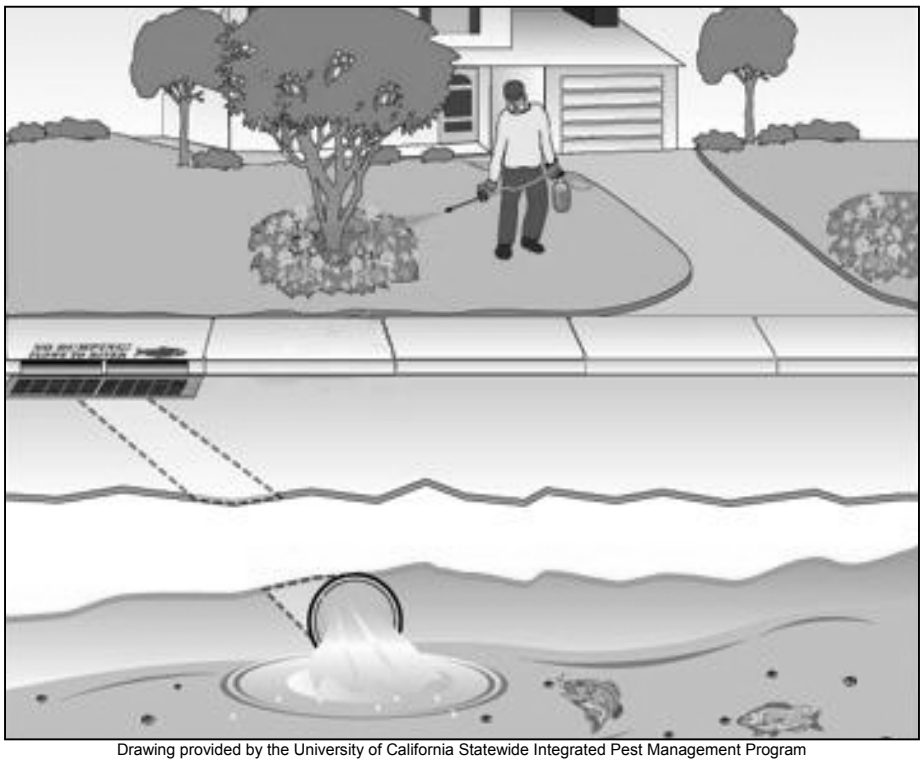
Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks

Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL)

Responses to Comments



Drawing provided by the University of California Statewide Integrated Pest Management Program

California Regional Water Quality Control Board
San Francisco Bay Region

November 9, 2005

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OVERVIEW

On August 5, 2005, Water Board staff distributed a proposed Basin Plan Amendment and Staff Report for a water quality attainment strategy and total maximum daily load (TMDL) for diazinon and pesticide-related toxicity in Bay Area urban creeks. After providing a 45-day comment period that ended September 19, 2005, we received ten comment letters. On October 19, 2005, the Water Board held a public hearing and heard oral testimony from six individuals. Water Board members also offered their own comments regarding the proposal. We present an overview of all these comments below. Detailed responses to public hearing comments begin on page 3, and detailed responses to written comments begin on page 16.

Where appropriate, we have changed the Basin Plan Amendment and Staff Report in response to particular comments. We explicitly identify these changes with our responses in this document. Minor corrections made through our own initiative appear on page 79.

Among the comments on the proposed Basin Plan Amendment, the following topics are of widest concern.

- *Legal Basis for Strategy and TMDL.* Some commenters question how a water quality attainment strategy can be adopted at the same time as a TMDL. The Water Board's authority for adopting the proposed Basin Plan Amendment (which would establish the water quality attainment strategy and TMDL) comes from both the California Water Code and the federal Clean Water Act. Water Code § 13242 calls for a program of implementation for achieving water quality objectives. Chapter 4 of the Basin Plan contains this program of implementation, and the proposed strategy and TMDL would be a part of this program. The Basin Plan Amendment also establishes TMDL targets and allocations pursuant to federal Clean Water Act § 303(d)(1) and § 303(d)(3). If we were to call our project simply a diazinon-specific TMDL, we would still propose to establish diazinon and pesticide-related toxicity targets through a Basin Plan Amendment, and the resulting implementation plan would be essentially the same as what is currently proposed. We believe calling the project a "water quality attainment strategy," and not just a "TMDL," better reflects the essential nature of the project. For more detailed responses on this topic, see pages 3, 19, and 42.

- *Recommended Agency Actions*. A common concern relates to the Water Board's ability to oversee the actions of other federal and state agencies. We cannot require these agencies to implement the actions identified for them in the strategy. Water Code § 13242 calls for a "description of the nature of actions which are necessary to achieve the [water quality] objectives, including *recommendations* for appropriate action by any entity, public or private." In the Basin Plan Amendment, we signal these recommendations by using the word "should." Used in this context, the word "should" is powerful. The Water Board provides leadership and clearly calls on other

state and federal agencies to act. By placing such recommendations in the Basin Plan, the Water Board can reinforce staff efforts to encourage our sister agencies to implement their assigned actions. For more detailed responses related to this topic, see pages 7, 11, 19, 28, and 29.

- *Water Board Authority and Federal Preemption*. Some have asked for more clarity regarding the actions the Water Board can take when relying solely on its own authorities to control pesticide-related discharges. Pursuant to the federal Clean Water Act and the California Water Code, the Water Board has jurisdiction over actual and threatened pesticide discharges. The federal Clean Water Act requires permits for urban runoff discharges. California Food and Agricultural Code § 11501.1 limits the authorities of local agencies to regulate pesticide sales and use. Some have argued that the federal Clean Water Act preempts this California law and suggest that the Water Board could condition storm water permits to require municipalities to regulate pesticide use. Based on our analysis, however, we disagree. For more detailed responses on this topic, see page 34.

- *Limits on Urban Runoff Management Agency Actions*. Stakeholders have expressed preferences for and against placing numeric effluent limits in storm water permits. In keeping with existing practice, we do not propose numeric effluent limits at this time. Some have also expressed concern that we appear to limit the responsibilities of urban runoff management agencies. In our view, we have not provided a so-called "shield." We have been careful to assign implementation responsibilities in a fair manner. Moreover, the Basin Plan Amendment does not restrict us from asking for more action from urban runoff management agencies or other parties in the future. It specifically states, "Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pesticides in urban runoff." For more detailed responses on this topic, see pages 5, 31, and 62.

- *Implementation Detail and Timeline*. Various stakeholders have suggested that the Basin Plan Amendment should contain more detail regarding actions to be taken by the Water Board and others, and should better describe how certain conditions will trigger specific actions. We believe the proposed Basin Plan Amendment strikes the right balance between providing specific guidance and direction, and allowing sufficient flexibility to implement water quality standards effectively and efficiently. Additional detail is more appropriate in storm water permits, which are revised and updated regularly. Some have asked for a clearer timeline for strategy implementation. Although we cannot control the timelines of our sister agencies, we have changed the Basin Plan Amendment to be clearer regarding our timeline for implementing actions within the Water Board's direct control. The revisions include a new table, Table 4-y, which commits the Water Board to specific trackable actions. For more detailed responses on this topic, see pages 7 and 32.

OCTOBER 19, 2005 HEARING

Water Board members and several stakeholders offered comments at the October 19, 2005 hearing. Staff responded to several Water Board member comments orally at the hearing. We address their remaining comments below, followed by responses to stakeholder comments. When oral hearing comments duplicate written comments, we provide our detailed responses with our responses to the written comments.

Water Board Member Comments

Conflicts of Law

(Transcript page 23)

Gary Wolff pointed out that there is an apparent conflict of law where the Water Board mandates urban runoff management agencies to take certain actions and another agency (e.g., the Department of Pesticide Regulation) says these agencies have no authority to undertake those actions. Dr. Wolff appeared to allude to the constraints on urban runoff management agencies by California Food and Agricultural Code § 11501.1, which prohibits local municipalities from regulating pesticide use.

We find no conflict of law between the federal Clean Water Act and California Food and Agricultural Code § 11501.1. The federal Clean Water Act does not require urban runoff management agencies to regulate pesticide use—rather, it requires municipal storm water dischargers to "effectively prohibit non-storm water discharges into storm sewers" and to have "controls to reduce the discharge of pollutants to the maximum extent practicable" (33 U.S.C. § 1342[p]). The federal regulations implementing this directive similarly do not require urban runoff management agencies to regulate pesticide use. Likewise, the proposed Basin Plan Amendment does not mandate that urban runoff management agencies regulate pesticide use. As to whether the federal Clean Water Act preempts Food and Agricultural Code § 11501.1, see our response on page 38.

Legal Basis for Strategy and TMDL

(Transcript page 63)

Dr. Wolff commented that the simultaneous adoption of a water quality attainment strategy and TMDL is potentially confusing. He suggested that they relate to two separate legal authorities. He asked that we clarify our legal basis for the strategy and TMDL so as to avoid an appeal or litigation. However, he also stated that he does not support fully separating a diazinon TMDL from the broader water quality attainment strategy.

The proposed Basin Plan Amendment seeks to eliminate and prevent pesticide-related toxicity in all urban creeks through a water quality attainment strategy that includes a TMDL. The legal authority for both the strategy and the TMDL is California Water

Code § 13242, which calls for a program of implementation for achieving water quality objectives. The strategy, including the TMDL, would become a program of implementation for achieving and maintaining the existing narrative water quality objectives for toxicity, sediment, and population and community ecology relative to pesticides.

The Water Board is authorized and required to adopt a TMDL under the federal Clean Water Act because 37 urban creeks have been listed as impaired for diazinon under Clean Water Act § 303(d)(1). Clean Water Act § 303(d)(1)(C) requires a TMDL to be established for waters listed as impaired pursuant to § 303(d)(1) and the loads must be set at a level necessary to implement applicable water quality standards. The proposed TMDL does that. It also establishes the TMDL for all urban creeks in the region, not just those on the §303(d)(1) list, which the Water Board is authorized to do under Clean Water Act § 303(d)(3) and Water Code § 13242. Clean Water Act § 303(d)(3) allows the Water Board to establish TMDLs for non-listed waters. Water Code § 13242 allows the Water Board to adopt a TMDL for non-listed waters as a means to implement water quality objectives.

Toxicity Objective
(Transcript page 65)

Dr. Wolff suggested that the water quality attainment strategy should relate to all causes of toxicity, not just pesticides. He expressed concern that the first page of the Basin Plan Amendment (relating to Basin Plan Chapter 3) deletes a numeric definition of acute toxicity, leaving only the narrative objective. He wondered if this weakens the Basin Plan. He stated that the Basin Plan should allow us to take some action if monitoring identifies toxicity unrelated to pesticides. He asked for a water quality standard for toxicity from all causes, not just pesticides. By this we assume he meant a numeric water quality objective for toxicity.

We think a broader toxicity strategy is unwarranted at this time; the need is not supported by data in the administrative record. For more than a decade, most toxicity observed in urban creeks has been associated with pesticides. In most cases, the cause of non-pesticide-related toxicity is unknown. Since pesticides pose our most serious toxicity concern at this time, we are now proposing a special strategy that focuses attention on this particular problem. In the meantime, based on the existing narrative objectives, we can take action whenever monitoring identifies toxicity, whether related to pesticides or not.

The applicable objectives relate broadly to toxicity and are part of our water quality standards. The Basin Plan Amendment does not change our water quality standards in any way. In fact, we had proposed to delete a numeric definition of acute toxicity from the existing Basin Plan's Chapter 3 because the same definition also appears in Chapter 4 in its proper context (wastewater). However, after conferring with the U.S. Environmental Protection Agency (USEPA), we acknowledge some uncertainty regarding whether this change could be considered a standards action. Therefore, we

have changed the Basin Plan Amendment (page A-1) to undo the previously proposed deletion. The proposed Basin Plan Amendment now retains the following text:

> There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, and less than 70 percent survival, 10 percent of the time, or test organisms in a 96-hour static or continuous flow test.

Likewise, we have changed the Staff Report (page 40) to undo the previously proposed deletion:

> The Basin Plan Amendment ~~removes a definition of acute toxicity that is redundant with text already in Chapter 4 and~~ removes unnecessary and not entirely accurate text regarding chronic toxicity.

The remaining proposed changes to Basin Plan Chapter 3 strengthen our ability to interpret the narrative objective by clarifying that the Water Board can use any appropriate method and is not limited to specific toxicity tests involving a few specific organisms and toxic endpoints. The revised text is similar to text in the Central Valley Water Board's Basin Plan for the Sacramento and San Joaquin River Basins, which states, "Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board."

The numeric toxicity targets proposed for Basin Plan Chapter 4 would not be water quality objectives (which appear in Chapter 3). They are numeric interpretations of the existing narrative objectives. We believe adopting a numeric toxicity objective in Chapter 3 would weaken the existing narrative objective, which is stronger (especially as modified in the proposed Basin Plan Amendment) because the Water Board can choose among many available methods to evaluate attainment of the narrative objective. The proposed target is limited to specific test species and toxic endpoints, so if it were adopted as an objective, it would be more limiting that the narrative objective. Moreover, if the Water Board were to adopt the proposed targets as objectives, the change would be considered a standards action, which would trigger substantial and time consuming requirements under Water Code §13241.

So-Called "Shield"
(Transcript page 67)

Dr. Wolff questioned proposed text that says urban runoff management agency obligations toward meeting the urban runoff allocations would be satisfied if they comply with the actions listed in the Basin Plan Amendment. He indicated his belief that this could limit permit requirements to actions identified in the Basin Plan Amendment. He asked that we legally justify this so-called "shield," remove it from the Basin Plan Amendment, or modify it. He suggested that we instead state an intention to use

enforcement discretion to not take enforcement action against urban runoff management agencies when identified toxicity is beyond their control.

Certain stakeholders believe we have provided a shield for urban runoff dischargers, and they would rather we didn't. Urban runoff management agencies do not believe we have provided a shield, but they would rather we did. In our view, we have not provided a shield, and urban runoff management agencies cannot expect one. We have been very careful in assigning allocations to urban runoff and assigning responsibilities for addressing the allocations to various parties. Because many parties play a role in determining what is discharged in urban runoff, we have assigned each of them some portion of the responsibility. The proposed implementation actions reflect these responsibilities.

We assign the following broad responsibilities to urban runoff management agencies: support proactive regulation, change municipal pest control practices, encourage others to do the same, and monitor creek conditions. The Basin Plan Amendment (pages A-10 to A-12) contains more detail. We also assign responsibilities to other parties, such as USEPA and the California Department of Pesticide Regulation. Each party is responsible for implementing the actions within its control, and none is given a shield from its responsibility for doing its part to ensure that the allocations are met.

The Basin Plan Amendment is clear regarding our expectations for the urban runoff management agencies. However, it does not restrict us from asking for more. On page A-10, it specifically states, "Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pesticides in urban runoff. Control measures implemented by urban runoff management agencies and other entities (except construction and industrial sites) shall reduce pesticides in urban runoff to the maximum extent practicable." (This quote reflects changes shown on page 53.) The maximum extent practicable standard continuously evolves as new and better best management practices become available. In other words, the Basin Plan Amendment anticipates that permit requirements will need to be updated and potentially expanded during each permit cycle. The Basin Plan Amendment goes on to say that permit requirements are to remain consistent with the existing Basin Plan section titled "Surface Water Protection and Management—Point Source Control – Stormwater Discharges." This portion of the Basin Plan states that storm water permits require technically and economically feasible control measures, and if water quality objectives are not attained, the Water Board could require additional control measures. Therefore, we have not provided any shield or safe harbor.

We have clarified in the Basin Plan Amendment that, if a pesticide-related toxicity problem persists, we will impose additional requirements on urban runoff agencies or focus additional efforts on others if we believe doing so would be more effective. Refer to our responses on pages 31 and 53 for relevant text changes.

We believe there is no need to state how the Water Board will exercise its enforcement discretion in the Basin Plan Amendment. The Water Board will continue to exercise its discretion, especially in cases where discharges are beyond a discharger's control.

Who, What, and When?
(Transcript page 69)

Dr. Wolff stated that the implementation plan needs to say "who" is to complete each action, "what" is to be done, and "when" the task is to be completed. He specifically objected to the use of the word "should" with respect to many actions. He suggested that we ask agencies such as the Department of Pesticide Regulation to commit to specific actions in writing, that we clearly state what the Water Board intends to do, and that we include specific deadlines. He asked that we state what actions the Water Board will take in response to positive or negative responses from the Department of Pesticide Regulation. He suggests a branching diagram. Dr. Wolff agreed that some details should be left to permits, but noted that we cannot use permits to address the specific actions of sister agencies such as the Department of Pesticide Regulation and the Structural Pest Control Board.

We recognize the need to be clearer regarding our timeline for implementing actions within our control. We control implementation in two areas: Water Board actions and urban runoff agency actions. Water Board implementation is already well underway, as described in the Staff Report (pages 99 to 101). The Basin Plan Amendment recognizes that NPDES permits need to be updated to reflect the proposed requirements as soon as they are reissued (if the requirements are not there already, as they are in many cases). We have changed the Basin Plan Amendment (page A-15) to be clearer regarding our timeline for implementing Water Board actions and inserted a new table (Table 4-y):

> …Taking immediate action allows progress to occur while more and better information is collected and the effectiveness of current actions is evaluated. Table 4-y lists specific actions the Water Board will use to track its progress and an implementation timeframe.

Likewise, we have changed the Staff Report (page 97) and inserted a new table on Staff Report page 98 (Table 11.2):

> …Taking immediate action allows progress to occur while more and better information is collected and the effectiveness of current actions is evaluated. Table 11.2 lists specific actions the Water Board will use to track its progress, an implementation timeframe, and an associated rationale.

We have changed the Staff Report table of contents (page v) to refer to the new table:

TABLE 4-y
Water Board Implementation Measure Tracking

Action	Schedule
Summarize pesticide regulatory activities as they relate to water quality, and identify opportunities to advise pesticide regulatory oversight agencies regarding future actions	Annually
Summarize research and monitoring data for pesticide regulatory oversight agencies and others, and determine where to focus future monitoring efforts based on critical data needs	Annually
Describe urban pesticide use trends and identify pesticides likely to affect water quality	Annually
Notify pesticide regulatory oversight agencies if water quality standard violations exist or are likely to exist in the future due to pesticide discharges	At least annually
Identify waters impaired by pesticide-related toxicity and waters where there is a potential for impairment	Biannually
Meet or correspond with pesticide regulatory oversight agencies regarding their roles in protecting water quality	At least annually
Place required actions in NPDES stormwater permits	No later than five years from effective date of strategy
Report implementation status to Water Board	Annually

And we have changed the Staff Report table of contents (page iii) as follows to reflect the new pagination:

Although we cannot directly require other agencies to implement their actions pursuant to specific timelines, the word "should" in the Basin Plan context is powerful. By using the word "should," the Water Board provides leadership and clearly calls on our sister agencies to act. This approach is consistent with Water Code § 13242, which calls for a "description of the nature of actions which are necessary to achieve the [water quality] objectives, including *recommendations* for appropriate action by any entity, public or private." By including such recommendations in the Basin Plan, the Water Board can endorse staff efforts to encourage these agencies to implement their portions of the strategy.

Our use of the word "should" in preliminary drafts of the Basin Plan Amendment has already attracted substantial attention from our sister agencies. They view the Basin Plan Amendment as a call to action—a mandate—although not an enforceable one. By calling

TABLE 11.2
Water Board Implementation Measure Tracking

Action	Schedule	Rationale for Schedule
Summarize pesticide regulatory activities as they relate to water quality, and identify opportunities to advise pesticide regulatory oversight agencies regarding future actions	Annually	Current practice is to review these regulatory activities each year
Summarize research and monitoring data for pesticide regulatory oversight agencies and others, and determine where to focus future monitoring efforts based on critical data needs	Annually	Current practice is to review research and monitoring activities each year
Describe urban pesticide use trends and identify pesticides likely to affect water quality	Annually	Current practice is to review pesticide use trends each year
Notify pesticide regulatory oversight agencies if water quality standard violations exist or are likely to exist in the future due to pesticide discharges	At least annually	Information regarding actual or potential water quality standard violations could arise with annual monitoring and possibly seasonal results
Identify waters impaired by pesticide-related toxicity and waters where there is a potential for impairment	Biannually	The §303(d) listing process currently takes place biannually
Meet or correspond with pesticide regulatory oversight agencies regarding their roles in protecting water quality	At least annually	Meetings and correspondence currently take place several times each year
Place required actions in NPDES storm water permits	No later than five years from effective date of strategy	Permits must be reissued every five years
Report implementation status to Water Board	Annually	An annual status report will allow the Water Board to oversee implementation

these actions out in the Basin Plan Amendment, we assist these agencies in justifying their efforts in these areas.

We agree that flow charts can be a useful way to illustrate a process. Figure 10.2 on Staff Report page 89 shows how we envision working with the Department of Pesticide Regulation. It illustrates the collaborative framework we are developing. Within this

framework, we will identify a range of information needs that will trigger communication with and appropriate response from the Department of Pesticide Regulation. Because we anticipate addressing many different types of pesticide problems through this process, we do not believe attaching a one-size-fits-all timeline to this flow chart is feasible.

We also do not believe all proposed actions are best represented by a decision tree, particularly when all actions are not linked or conditional. Figure 10.1 on Staff Report page 87 shows how urban runoff agency actions relate to one another, but all these actions need to be implemented simultaneously. A decision tree would not be the best way to represent them. Figures 10.1 and 10.2 illustrate concepts that are already expressed narratively in the Basin Plan Amendment. Adding such charts to the Basin Plan Amendment would be redundant and could inadvertently leave the impression that Basin Plan Amendment implementation actions must fall within a linear framework.

Water Board Authorities
(Transcript page 71)

Dr. Wolff asked for a legal brief to identify the scope of Water Board authority with respect to controlling pesticide discharges.

The Water Board's legal counsel will provide any necessary legal advice.

Integrated Pest Management and Green Businesses
(Transcript page 72)

Dr. Wolff mentioned the need to define Integrated Pest Management on a region-wide basis and for agencies to promote Integrated Pest Management. He specifically mentioned the potential to certify and promote "green businesses" that offer Integrated Pest Management services.

The Basin Plan Amendment (page A-4) defines the term "Integrated Pest Management." We base our definition on one provided by the University of California Statewide Integrated Pest Management Program. We agree that a third party certification program for providers of Integrated Pest Management services would help consumers identify professionals that offer less toxic pest control. To this end, the State Water Board has provided more than $1 million in Proposition 13 grant funding to develop Integrated Pest Management standards for structural pest control service providers and to initiate a pilot certification program (similar to a green business program). Various parties, including the non-profit Bio-Integral Resource Center and the Association of Bay Area Governments, are making these projects a reality. For more information about pesticide-related State Water Board grants, see Staff Report Table 12.1 (page 100). Adopting the Basin Plan Amendment would provide a clear rationale for continuing these programs.

Organization and Format
(Transcript page 74)

Dr. Wolff suggested that changes to the Basin Plan Amendment be made in the context of a template like the Tomales Bay Pathogens TMDL, which included a table of implementation actions listing "who," "what," and "when." He suggested setting up a template for implementation that can be used for all TMDLs.

The proposed strategy is unlike the Tomales Bay TMDL in a few important ways. The Tomales Bay TMDL covered one pollutant in a small watershed and was essentially corrective in nature. In contrast, this strategy covers a range of pesticide pollutants in a large number of watersheds and is essentially preventive in nature. Therefore, the proposed implementation actions are, due to the nature of the problem, broader and less defined. This is necessary and appropriate because we cannot know all the future pesticide-related toxicity problems we might need to address. We can only seek a helpful framework to address those future problems.

The Tomales Bay TMDL identified a number of sources and included a few implementation actions for each of them. This pesticide strategy identifies only one source (urban runoff) and, compared to the Tomales Bay TMDL, provides substantial detail regarding implementation related to that one source. We recognize the potential benefit of standardizing TMDL formats, and we intend to use adopted TMDLs as models for new TMDLs. However, we do not believe the Tomales Bay TMDL format is a good model for the pesticide-related toxicity strategy. We also do not believe the pesticide strategy format is necessarily a good model for other TMDLs. The pesticide strategy is unique among our TMDL projects, and its format should be unique as well.

Schedule for Revisions
(Transcript page 77)

Clifford Waldeck encouraged staff to revise the text more quickly than the few months assumed by Dr. Wolff. We are proposing numerous revisions in the proposed Basin Plan Amendment to be presented to the Water Board at its November meeting and leave it to the Water Board to decide if additional revisions are warranted.

Green Businesses
(Transcript page 82)

Mr. Waldeck stated that he would like to support green businesses. See our response on page 10.

Structural Pest Control Board
(Transcript page 83)

Dr. Wolff suggested that we send a letter requesting the Structural Pest Control Board to change their rule that restricts structural pest control providers from making

environmental claims even if they are true. He called for them to modify their rule to prohibit only fraudulent practices or to allow claims only under certain circumstances. He suggested that the strategy could state whether we would pursue Structural Pest Control Board action and explain why.

We have already reached out to the Structural Pest Control Board beyond simple correspondence. We attended a Structural Pest Control Board meeting on October 7, 2005. The Structural Pest Control Board had reviewed the proposed Basin Plan Amendment and Staff Report and discussed the proposal at the meeting. Our water quality concerns were new to them. We explained who the Water Board is, what we do, and how the Structural Pest Control Board can help us solve our pesticide toxicity problem. The Structural Pest Control Board was initially concerned that the Water Board might intend to mandate the actions identified in the Basin Plan Amendment. We explained that the word "should" indicated that these actions were not regulatory mandates, but rather a call for action. We explained that the Basin Plan Amendment recognizes the role of the Structural Pest Control Board in overseeing structural pest control and how that role relates to water quality. We told the Structural Pest Control Board that if the Water Board adopts the Basin Plan Amendment, the Structural Pest Control Board can be assured of our endorsement to the extent that it chooses to implement the proposed Basin Plan Amendment actions.

The Structural Pest Control Board was particularly hesitant to change its marketing rule that limits environmental claims in advertising. The consensus of its members seemed to be that the rule is necessary to protect structural pest control businesses from lawsuits regarding their environmental claims. Although the Structural Pest Control Board expressed limited interest in acting on our recommendations, it decided to form a committee to track water quality issues as they relate to structural pest control. This positive development offers an opportunity to continue to educate the Structural Pest Control Board about water quality issues. We will continue to work with the Structural Pest Control Board, looking forward to a time when it can fully embrace the actions proposed in the Basin Plan Amendment.

Adoption of Toxicity Target as Objective
(Transcript page 85)

Dr. Wolff suggested that placing a numeric toxicity objective for urban creeks in Chapter 3 might clarify that we are not requiring urban runoff management agencies to address all toxicity.

To be clear, urban runoff management agencies do bear responsibility for all toxicity in their discharges, whether or not the proposed pesticide strategy is adopted. The Basin Plan Amendment does not eliminate or minimize the existing water quality objectives. It does include numeric toxicity targets, which are numeric interpretations of the applicable objectives. Because the strategy relates only to pesticides, however, its targets only relate to pesticides. Expressing the pesticide-related toxicity targets as a numeric objective in

Chapter 3 of the Basin Plan would weaken the existing narrative objectives by focusing on specific toxicity tests, test organisms, and toxic endpoints. Refer to our response on page 4.

Public Comments

Geoff Brosseau, Bay Area Stormwater Management Agencies Association
(Transcript page 38)

Mr. Brosseau asked that the diazinon target be consistent with California's § 303(d) listing and delisting policy. He believes the target implies no tolerable exceedance frequency. Our response is on page 46.

Mr. Brosseau expressed concern that monitoring benchmarks could be used to evaluate permit compliance. Our response is on page 55.

Mr. Brosseau expressed concern that urban runoff management agencies could be required to expend significant resources if actions proposed for federal and state agencies are not sufficiently implemented. He asked that the Basin Plan Amendment be revised to provide more clarity regarding what will happen if future pesticide problems cannot be dealt with sufficiently through this strategy. Our responses are on page 41 and 57.

Robert Sorenson, California Department of Transportation
(Transcript page 46)

Mr. Sorenson asked that we not assign a wasteload allocation for urban runoff from California Department of Transportation sites. Our response is on page 74.

Gary Grimm, Alameda Countywide Clean Water Program
(Transcript page 47)

Mr. Grimm disagreed with comments suggesting that the federal Clean Water Act overrides the California Food and Agricultural Code and provides the ability of urban runoff management agencies to regulate pesticide use. See our response to those comments on page 38.

Mr. Grimm supported the proposed Basin Plan Amendment in clarifying that urban runoff management agency responsibilities for addressing the allocations and targets is to be satisfied by complying with NPDES permit requirements developed consistent with the Basin Plan. He disagreed with comments calling this language a shield. He notes that NPDES permits (Provisions C-1 and C-2) already allow for additional control measures to be put in place if water quality standards are not met. See our responses on pages 31 and 62.

Andria Ventura, Clean Water Action and Environmental Justice Coalition for Water
(Transcript page 50)

Ms. Ventura expressed concern that the Basin Plan Amendment is overly general and does not adequately describe specific actions the Water Board and others will take. She noted that, despite all the programs now being implemented to address pesticide-related toxicity, toxicity problems persist. Our response is on page 32.

Ms. Ventura noted that the public needs to prioritize its pest problems and control pests only when necessary. Ants, for example, are the most common pests in the Bay Area, but they pose no health problem; they are only a nuisance. We agree. No further response to this comment is necessary.

Ellen Johnck, Bay Planning Coalition
(Transcript page 55)

Ms. Johnck endorsed Geoff Brosseau's remarks.

Ms. Johnck asked whether the Basin Plan Amendment contains specific thresholds or targets that the construction industry would have to meet, and if so, whether they are already in violation. She asked how permits for the construction industry would be handled.

We propose allocations for construction dischargers that are the same as those assigned to all other dischargers. (The alternative is to provide no allocation and therefore allow no discharge of diazinon or pesticide-related toxicity.) We have no data regarding pesticide discharges or toxicity from construction sites, so we do not know whether construction dischargers currently meet these allocations. However, we also have no reason to believe construction sites are substantial pesticide sources. Nevertheless, we assume that, like all sites, pesticide discharges could occur. The existing statewide general permit for storm water discharges from construction sites require dischargers to identify pollutants of concern and implement appropriate controls pursuant to the sites' required storm water pollution prevention plans. We propose pesticide-specific requirements in the Basin Plan Amendment (pages A-10 to A-12).

Sejal Choksi, Baykeeper
(Transcript page 58)

Ms. Choksi opposed the "shield" she believes exists in the proposed Basin Pan Amendment for urban runoff management agencies. She stated that an iterative process for best management practices is needed. See our responses on pages 31 and 62.

Ms. Choksi asserted that the TMDL cedes too much authority to the Department of Pesticide Regulation. She contended that federal Clean Water Act overrides the California Food and Agricultural Code. Our responses are on pages 35 and 38.

Ms. Choksi asked that we specify deadlines for Department of Pesticide Regulation actions and state that, if the Department of Pesticide Regulation does not act, the Water Board will use its own authorities as necessary to protect water quality. Our responses are on pages 34 and 35.

Ms. Choksi said five years is too long to wait for actions to be taken. She asserted that the Basin Plan Amendment would not allow agencies to act more quickly. She asked that, at a minimum, the TMDL codify current urban runoff management agency programs. Our responses are on pages 32 and 40.

U.S. ENVIRONMENTAL PROTECTION AGENCY

On behalf of USEPA, Debra Denton reviewed the Basin Plan Amendment to determine whether it is consistent with federal TMDL requirements. She praises the Water Board for developing an implementation plan focused on pollution prevention. We address her specific comments below.

Dr. Denton supports expressing numeric targets in terms of both pesticide-related toxicity and diazinon concentration, particularly in light of the recent phase out of most urban diazinon uses and the potential for interactions among pesticides and other chemicals in Bay Area creeks. She also supports expressing the TMDL in concentration terms equal to the targets, noting that this approach is consistent with several recently adopted TMDLs. No response to this comment is necessary.

Dr. Denton suggests some clarifications regarding multi-concentration toxicity tests and single-concentration toxicity tests. She notes that "no observed adverse effects concentrations" (NOAECs) and "no observed effects concentrations" (NOECs) cannot be determined using single-concentration tests. She agrees that it is reasonable to assume, however, that a sample that exhibits no toxicity in a single-concentration test is not toxic and therefore meets the proposed toxicity targets and narrative water quality objectives. She also takes exception to assumptions regarding the minimum detectable difference between toxicity test samples and controls. We had proposed a minimum detectable difference threshold of 20% for program consistency because the Bay Protection and Toxic Cleanup Program, the Regional Monitoring Program for Trace Substances, and the Surface Water Ambient Monitoring Program all use this value to interpret toxicity tests. Nevertheless, we do not object to deleting references to it. We have changed the Basin Plan Amendment (page A-3) as follows:

> …For purposes of this strategy, an undiluted ambient water or sediment sample that does not exhibit an acute or chronic toxic effect that is ~~(1)~~ significantly different from control samples on a statistical basis ~~and (2) at least 20% greater than observed in control samples~~ shall be assumed to meet the relevant target ~~have a NOAEC or NOEC of 100%~~.

Similarly, we have changed the Staff Report (page 59) as follows:

> For purposes of this strategy, an undiluted ambient water or sediment sample that does not exhibit an acute or chronic toxic effect that is ~~(1)~~ significantly different from control samples on a statistical basis ~~and (2) at least 20% greater than observed in control samples~~ can be assumed to meet the relevant toxicity target ~~have a NOAEC or NOEC of 100%. Such a sample would meet the toxicity targets. For purposes of this strategy, to conclude that an undiluted sample does not meet the toxicity targets requires a statistically significant toxic effect that is also at least 20% greater than observed in~~

~~control samples. This is assumed to be the minimum detectable significance between a sample and a control (Pesticide Workgroup, undated; Thursby et al. 1997; Phillips et al. 2001). The 20% detectable difference threshold was developed for sediment toxicity tests, and the Bay Protection and Toxic Cleanup Program uses this threshold (SWRCB et al. 1998). The same value has also been used to evaluate aquatic toxicity test results (Hunt et al. 1999). The Regional Monitoring Program for Trace Substances and the Surface Water Ambient Monitoring Program both assume this detectable difference to interpret their toxicity tests, and this strategy incorporates this threshold for program consistency~~.

Because the above change deletes several citations, we have also deleted these references, changing the Staff Report (page 125) as follows:

~~Hunt, J., B. Anderson, B. Phillips, R. Tjeerdema, H. Puckett, and V. deVlaming 1999. "Patterns of Aquatic Toxicity in an Agriculturally Dominated Coastal Watershed in California," *Agriculture, Ecosystems and Environment*, 75:75-91.~~

We have changed the Staff Report (page 126) as follows:

~~Pesticide Workgroup, undated. "Report of the Pesticide Work Group," prepared by a workgroup of the Regional Monitoring Program for Trace Substances, pp. 1-3.~~

~~Phillips, B., J. Hunt, B. Anderson, H. Puckett, R. Fairey, C. Wilson, and R. Tjeerdema 2001. "Statistical Significance of Sediment Toxicity Test Results: Threshold Values Derived by the Detectable Significance Approach," *Environmental Toxicology and Chemistry*, 20(2):371-373.~~

We have changed the Staff Report (page 129) as follows:

~~State Water Resources Control Board, San Francisco Bay Regional Water Quality Control Board, California Department of Fish and Game Marine Pollution Studies Laboratory, California State University Moss Landing Marine Laboratories, and University of California, Santa Cruz, Institute of Marine Sciences (SWRCB et al.) 1998. *Sediment Quality and Biological Effects in San Francisco Bay: Bay Protection and Toxic Cleanup Program, Final Technical Report*, August, pp. 45-47.~~

We have changed the Staff Report (page 130) as follows:

~~Thursby, G., J. Heltshe, and K. Scott 1997. "Revised Approach to Toxicity Test Acceptability Criteria Using a Statistical Performance Assessment," *Environmental Toxicology and Chemistry*, 16(6):1322-1329.~~

Dr. Denton supports the implementation strategy's three-pronged focus: regulatory programs, education and outreach, and research and monitoring. She specifically encourages the Water Board, USEPA, the California Department of Pesticide Regulation, and others to voluntarily implement the actions listed in the Basin Plan Amendment. She also commends the Water Board for its support for research to enhance pyrethroid analytical methods, studies to evaluate urban pesticide use trends, and the education and communication efforts of the Urban Pesticide Committee. No response to this comment is necessary.

Dr. Denton recognizes the need for more pesticide water quality criteria and endorses our approach for developing monitoring benchmarks. She notes one correction, however, and we have changed a Basin Plan Amendment Table 4-x footnote (page A-14) as follows:

> [a] U.S. EPA water quality criteria guidelines require data for at least eight taxonomic families ~~genera~~ to derive water quality criteria.

Likewise, we have changed a Staff Report Table 11.1 footnote (page 96) as follows:

> [a] The U.S. Environmental Protection Agency's water quality criteria guidelines require data for at least eight taxonomic families ~~genera~~ to derive water quality criteria (USEPA 1985).

CALIFORNIA
DEPARTMENT OF PESTICIDE REGULATION

On behalf of the California Department of Pesticide Regulation, Douglas Okumura offers a number of comments. We respond to them below, using the same headings found in his letter.

Page 29, "Water Boards" section

Mr. Okumura requests more information regarding Water Board activities. He notes that Water Code § 13247 is not mentioned again and Water Code § 13225 is only mentioned on Staff Report page 111 (it is also mentioned on page 84). He contends that unless the Water Board proposes to invoke these statutes, we need not mention them. He recommends providing a more thorough overview of the Water Board's mandates and authorities.

We believe Water Code § 13247 provides important context for the Basin Plan Amendment. It mandates that other state offices, departments, and boards must comply with the Basin Plan. Although the proposed Basin Plan Amendment calls upon the Department of Pesticide Regulation (and the Structural Pest Control Board) to assist us in implementing the strategy, it does not explicitly mandate such cooperation. Essentially, it says these state agencies "should" implement their actions, not "shall" implement their actions.

We have not ruled out invoking Water Code § 13225, which authorizes the Water Board to seek certain types of information from other state agencies and request enforcement of laws that relate to water quality control. However, if the collaborative approach outlined in the Basin Plan Amendment (page A-8) is effective, we expect formal steps to invoke Water Code § 13225 to be unnecessary.

To provide additional context regarding Water Board mandates and authorities, we have changed the Staff Report (page 29) as follows:

> In the Bay Area, the Water Boards are primarily responsible for enforcing water quality standards. The Porter-Cologne Water Quality Control Act requires Water Boards to adopt water quality control plans (Basin Plans) for waters within their regions (Water Code § 13240). In formulating these plans, Water Boards must consult with affected state and local agencies. Water Boards are also required to review and revise these plans periodically. Basin Plans contain water quality objectives to protect beneficial uses (Water Code § 13241). ~~The~~ Basin Plan ~~contains water quality~~ objectives apply ~~applicable~~ to pesticide discharges and their resultant aquatic toxicity (see Section 5, "Project Description").

Water Code § 13242 requires Water Boards to establish programs of implementation for achieving water quality objectives. These programs must include a description of the actions necessary to achieve water quality objectives, including recommendations for action by any entity, public or private. The programs must also include time schedules and descriptions of surveillance to be undertaken to determine compliance with objectives.

The San Francisco Bay Basin Plan ~~and~~ prohibits the discharge of "biocides…which have…characteristics of concern to beneficial uses when applied where direct or indirect discharge to water is threatened except where net environmental benefit can be demonstrated…."

Page 31, paragraph 2, sentence 2

Mr. Okumura suggests that we rephrase our description of California Code of Regulations, Title 3, § 6220, and we have changed the Staff Report as follows:

To the extent that…. Any time the Department of Pesticide Regulation receives evidence that a registered pesticide may have caused, or is likely to cause, a significant adverse impact on ~~could adversely affect~~ the environment, it can initiate a re-evaluation process (Title 3, California Code of Regulations, §6220 et seq.).

Page 30, paragraph 1, sentence 1

Mr. Okumura notes that the Department of Pesticide Regulation regulates pesticide sales and use, but not manufacture. We have changed the Staff Report as follows:

The Department of Pesticide Regulation regulates pesticide sales ~~manufacture~~ and use within California.

Page 31, second paragraph

Mr. Okumura clarifies that California Code of Regulation, Title 3, § 6158 does not define "environmental harm" or describe the Department of Pesticide Regulation's latitude in defining "environmental harm." He notes that § 6158 does not specifically link "environmental harm" to attainment of environmental standards. We have changed the Staff Report as follows:

~~According to the California Code of Regulations (Title 3, §6158), the~~ The Department of Pesticide Regulation has broad discretion in determining what it considers to be environmental harm; however, the California Code of Regulations (Title 3, §6158) describes factors to be considered when registering a pesticide:

Because the Department of Pesticide Regulation apparently has no operable definition of environmental harm and is not obligated to consider violations of water quality standards to be environmental harm, we believe it is appropriate for the Water Board to provide a recommendation regarding what, in the Water Board's view as the authority on the Region's water quality, should be considered environmentally harmful from the water quality perspective. The proposed Basin Plan Amendment (page A-7) provides this recommendation. Note that we have changed Basin Plan Amendment text (page A-7) relating to pesticides used such that their runoff violates or poses a reasonable potential to violate water quality standards being environmentally harmful materials. See our response on page 28.

Page 39, second paragraph, sentence 3

Mr. Okumura suggests clearly stating that our basis for concluding, "...all urban creeks are likely impaired..." is an assumption that urban Bay Area watersheds have similar land use patterns, hydrology, and pesticide use patterns, resulting in similar pesticide runoff scenarios. We have changed the Staff Report as follows:

> …Nevertheless, all urban creeks are likely impaired, regardless of whether they have been formally listed as impaired pursuant to Clean Water Act §303(d), because urban Bay Area watersheds have similar land use patterns, hydrology, and pesticide use patterns, resulting in similar pesticide runoff scenarios.
>
> Few differences in pesticide use patterns are readily apparent among urban watersheds (UC IPM 2003)….

Page 40, last paragraph, sentence 1

Mr. Okumura refers to a study cited in the Staff Report (SFEP 2005a) and asserts that it would be more accurate to say that at least 50% and up to 75% of California pesticide use occurs in urban areas. The cited report states:

> Assuming all unreported pesticide use is urban and adding this to reported urban use gives a total of about 500,000,000 pounds of pesticide active ingredient used in urban areas in California in 2003, about 75% of total use. Given the uncertainties in the data sources, this estimate is not exact; nevertheless, it certainly indicates that at least half of California pesticide use occurs in urban areas.

This text indicates that the 75% value is calculated from actual data, while the 50% value is approximated. We prefer to report the value actually calculated with the qualifying modifier "roughly" to reflect that there is uncertainty in this value. We note, however, that in finding that roughly 75% of California pesticide use is urban, we do not assume that all this use necessarily threatens water quality.

Page 42, third bullet

Mr. Okumura suggests text changes to reflect that not all Bay Area urban creeks have been monitored for pesticides. We have changed the Staff Report as follows:

> Because all Bay Area urban creeks can reasonably be assumed to receive pesticide discharges, and because implementation actions will be most efficient if applied region-wide, the strategy applies to all Bay Area urban creeks, including those not formally designated as impaired pursuant to Clean Water Act §303(d)(1).

Similarly, we have also changed Staff Report page S-2 as follows:

> …Because all Bay Area urban creeks can reasonably be assumed to receive pesticide discharges, and because implementation actions will be most efficient if applied region-wide, the strategy applies to all Bay Area urban creeks, including those not formally designated as impaired.

Page 45, paragraph 2

Mr. Okumura questions the need to explain where pesticides come from (i.e., manufacturers). He contends that this detracts from the causes of pesticide pollution (pesticide use where pesticides are prone to reach surface waters). He prefers that the Water Board not suggest that pesticide runoff has anything to do with pesticide manufacture, formulation, distribution, or sales.

Many USEPA and California Department of Pesticide Regulation actions listed in the proposed Basin Plan Amendment (pages A-6 to A-9) relate to the pesticide industry. Therefore, the source assessment needs to explain their connection to pesticide discharges. Pesticide registrants (manufacturers and formulators) seek USEPA registration for the active ingredients in their products and Department of Pesticide Regulation registration for the products themselves. The registrants determine which pesticides they seek to register and work closely with regulatory agencies to provide technical information to support registration. We believe these companies have a role to play in implementing the water quality attainment strategy. We include specific actions for them in the Basin Plan Amendment (page A-12), where we also state a preference that the pesticide industry should shoulder the burden of addressing critical data needs (page A-16).

Page 62, paragraph 3

Mr. Okumura asks that we better describe how we selected the proposed diazinon target. He suggests providing in the Staff Report the no adverse effect concentrations from Moore and Waring (1996) and Scholz et al. (2000). If these values are higher than the California Department of Fish and Game water quality criteria, he recommends that we propose the lower water quality criteria as targets.

Moore and Waring (1996) do not report a diazinon concentration at which they observed no effects. At the lowest concentration they tested, 300 ng/l, they saw effects. As the Staff Report (page 62) states, Scholz et al. (2000) observed no effects at 100 ng/l.

The proposed diazinon concentration target of 100 ng/l (to be applied as a one-hour average) is largely based on the water quality criteria; however, we also considered Scholz et al. (2000). We agree with Mr. Okumura that the selected target should be conservative. We incorporated a margin of safety by selecting a value lower than the acute water quality criterion of 160 ng/l (also to be applied as a one-hour average). As a one-hour average, the proposed target is also more conservative than the chronic water quality criterion of 100 ng/l because the chronic criterion is to be applied as a four-day average.

Page 75, second bullet, sentence 5

Mr. Okumura notes that the proposed diazinon target is not entirely based on USEPA guidance for developing water quality criteria, which requires data for at least eight taxonomic groups. He asserts that the proposed target is based on effects observed in a single taxonomic group and objects to our stating that the proposed diazinon concentration target is largely based on water quality criteria.

The proposed target is not intended to be a water quality criterion. However, as explained above, we selected the target first on the basis of the California Department of Fish and Game water quality criteria because they are of prime importance. Then we adjusted these values to account for Scholz et al. (2000) and to provide a margin of safety. The resulting target is the same as the concentration where no effects were observed in one particular study, but the target is not based on that study alone.

Page 80, Table 10.1

Mr. Okumura requests citations for the information presented in Table 10.1, but Water Board staff created Table 10.1 to illustrate the Integrated Pest Management process so there are no references to cite.

Page 81, paragraph 3

Mr. Okumura suggests noting that Water Board staff developed the proposed actions in consultation with many stakeholders, including the Department of Pesticide Regulation. We have changed the Staff Report as follows:

> …Ultimately, private and professional pesticide users must change their attitudes and behavior to reduce pesticide discharges that threaten water quality. <u>Water Board staff worked with many stakeholders to develop lists of actions (provided below) necessary to attain water quality standards.</u>

Page 81, paragraph 3, sentence 2

Mr. Okumura suggests replacing the words "will need to" in the Staff Report with the word "should," which appears in the proposed Basin Plan Amendment. However, in this case, we chose our words appropriately for the Staff Report and Basin Plan Amendment. The basis for stating that entities *should* act, as stated in the Basin Plan Amendment, is that the entities *will need to* act, as stated in the Staff Report.

Mr. Okumura also reiterates his concern that Staff Report Section 4, "Regulatory Oversight," does not provide adequate context to understand the proposed implementation actions. Our response is on page 19.

Page 81, paragraph 4, sentence 2

Mr. Okumura asks how the Water Board will require those responsible for pesticide use and oversight, including the Department of Pesticide Regulation, to implement the water quality attainment strategy. The strategy relies on inter-agency cooperation, collaboration, and coordination, as indicated on Staff Report page 87, which states:

> …Implementing the actions assigned to the U.S. Environmental Protection Agency…, the California Department of Pesticide Regulation…, County Agricultural Commissioners…, the California Department of Consumer Affairs…, and the University of California Statewide Integrated Pest Management Program…will require inter-agency cooperation…. Water Board staff will collaborate with the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and County Agricultural Commissioners to track their actions and those of the private sector.

Basin Plan Amendment page A-5 expresses this as follows:

> Actions that can be required through NPDES permits are already in some permits and shall be incorporated into all applicable NPDES permits when the permits are reissued. Voluntary actions should commence immediately, and inter-agency coordination is already underway.

For more information, see our response on page 7.

Page 82, last paragraph (resumes on page 84), sentence 5

Mr. Okumura notes that the Department of Pesticide Regulation has not allocated resources to respond to possible Water Board requests made pursuant to Water Code § 13225(c) for special studies. He expresses hope that the Water Board will not invoke Water Code § 13225(c). Likewise, we assume that ongoing collaboration between the Department of Pesticide Regulation and the Water Board will avoid the need for more formal actions. This does not mean that such studies will be unnecessary, however.

Page 90, paragraph 2, sentence 2

Mr. Okumura objects to wording that he interprets to suggest that the Water Board is directing the Department of Pesticide Regulation to use its authorities in a particular way. We have changed the Staff Report as follows:

> [This proposed process] does not suggest that the California Department of Pesticide Regulation will relinquish its responsibility to continuously evaluate the potential for pesticide products to threaten water quality. Likewise, although the process calls for the California Department of Pesticide Regulation ~~is~~ to ensure that actions necessary for compliance with water quality standards are taken, the Water Board will continue to identify and evaluate available information to confirm that water quality standards are met.

Page 91, third bullet

Mr. Okumura expresses concern that the Staff Report, in stating that many entities must share responsibility for implementing actions, could be interpreted in a regulatory context as assigning shared liability for implementation. We believe this summary "key point" is sufficiently clear. It cannot be misinterpreted as a regulatory requirement because it does not appear as a regulatory provision in the Basin Plan Amendment.

Page 97, paragraph 1

Mr. Okumura expresses support for how we propose to use monitoring benchmarks. No response to this comment is necessary.

Page 102, paragraph 3

Mr. Okumura notes that the Department of Pesticide Regulation implements the Healthy Schools Act. We have changed the Staff Report as follows (in addition, these changes remove text regarding a topic discussed elsewhere in the Staff Report [page 32]):

> The California Department of Pesticide Regulation has participated in the Urban Pesticide Committee since the committee's inception. It also participates in the Marina and Recreational Boating Workgroup of the Non-Point Source Interagency Coordination Committee, which addresses the use of copper-based pesticides in antifouling paints. In implementing the Healthy Schools Act, the California Department of Pesticide Regulation promotes integrated pesticide management at California schools. ~~The California Department of Pesticide Regulation completed a water quality response process with input from the Water Boards (CDPR 2003b). The process, discussed in Section 4, "Pesticide Oversight," addresses circumstances when water quality objectives are violated.~~

Page 111, paragraph 3, sentence 4

Mr. Okumura notes that, pursuant to Water Code § 13267, the Water Board may only require technical and monitoring reports from dischargers. He questions how the Water Board could potentially use § 13267 to obtain information from pesticide registrants. To use § 13267, we would need to find that the pesticide registrants are actual or threatened dischargers. Section 13267(b)(1) states:

> …the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region…furnish…technical or monitoring program reports….

The Department of Pesticide Regulation's authority to obtain information from pesticide registrants is unequivocal. The alternatives discussion to which this comment relates demonstrates the importance of Department of Pesticide Regulation cooperation with the Water Board in ensuring that water quality standards are met. Fortunately, the Department of Pesticide Regulation and the State Water Board have mutually agreed "to ensure that compliance with State and Regional Boards' established numeric and narrative water quality objectives is achieved" (CDPR et al. 1997).

Page 111, paragraph 3, sentence 5

Mr. Okumura reiterates his hope that the Water Board will not invoke Water Code § 13225. Our response is on page 24.

Page 115, paragraph 1

Mr. Okumura explains that the Department of Pesticide Regulation cannot currently allocate $675,000 per year to implement the water quality attainment strategy, but he confirms the Department of Pesticide Regulation's commitment to collaborate with the Water Board to the extent that resources allow. We understand that adoption of the Basin Plan Amendment does not guarantee that the resources necessary to implement the strategy will be available. Nevertheless, we expect strategy adoption to be helpful in allocating resources in the future. We believe our cost estimate represents the upper range of possible costs. Available resources will dictate the extent to which the Department of Pesticide Regulation implements the strategy. This being said, the Department of Pesticide Regulation can transfer some costs to pesticide registrants, particularly if it engages in re-evaluation or continuing evaluation (see Staff Report page 31).

Page S-1, paragraph 4, sentence 3

Mr. Okumura objects to our stating, "Gaps in pesticide regulatory program implementation allow pesticides to be used in ways that result in discharges that impair urban creeks and their habitat-related beneficial uses." He would prefer that we say,

"Incongruities among controlling statutes may result in pesticide regulatory programs that do not always protect water quality standards." Mr. Okumura suggests that the problem of pesticide-related toxicity in urban creeks is caused by differences in law—that the Department of Pesticide Regulation and the Water Boards are simply implementing separate laws, and gaps exist. It is true that there are incongruities among controlling statutes; however, nothing prevents USEPA and the California Department of Pesticide Regulation from restricting pesticide applications sufficiently to ensure attainment of water quality standards. California Food and Agricultural Code § 14102 states, "The director [of the Department of Pesticide Regulation] shall prohibit or regulate the use of environmentally harmful materials…," which can include pesticides used such that their runoff violates or poses a reasonable potential to violate water quality standards. (See our response on page 20.) In our view, incongruities among statutes may have inadvertently lead to gaps in pesticide regulatory program implementation, but better coordination can protect water quality. No change in applicable laws is necessary.

Page S-2, paragraph 1, sentence 3

Mr. Okumura reiterates his concern about connecting pesticide manufacture, formulation, distribution, and sales with pesticide runoff. Our response is on page 22.

Page S-2, paragraph 3, sentence 3

Mr. Okumura notes that pesticide degradation is a fate process, not a transport mechanism. We agree and have changed the Staff Report as follows:

> Degradation, evaporation and deposition, and sediment transport are relevant pesticide <u>fate and</u> transport mechanisms.

Likewise, we have changed the Staff Report (page 71) as follows:

- Degradation, evaporation and deposition, and sediment transport are important pesticide <u>fate and</u> transport mechanisms.

Page S-3, paragraph 2, last sentence

Mr. Okumura refers to a previous comment regarding how the Water Board will require those responsible for overseeing pesticide use to implement the actions proposed for them. Our response is on page 24.

Page A-3, paragraph 4

Mr. Okumura refers to a previous comment regarding how the diazinon target was derived. Our response is on page 22.

Page A-6, last paragraph (resumes on page A-7), last sentence

Mr. Okumura cites the Department of Pesticide Regulation's authority under the Food and Agricultural Code to determine when pesticides should be considered environmentally harmful materials. We recognize this authority. However, we note that the Department of Pesticide Regulation currently has no definition of "environmentally harmful." Among Mr. Okumura's previous comments, he asserts that the Department of Pesticide Regulation is not obligated to consider violations of water quality standards to be environmental harm (see his comment regarding Staff Report page 31 and our response on page 20). Therefore, we see a clear need for the Water Board, which is the authority on the Region's water quality, to provide recommendations to the Department of Pesticide Regulation regarding what, in the Water Board's view, should be considered environmentally harmful from the water quality perspective. We see nothing in federal or state law that prohibits the Department of Pesticide Regulation from restricting pesticide applications sufficiently to ensure attainment of water quality standards. Indeed, the Department of Pesticide Regulation has agreed to ensure that water quality standards are met (CDPR et al. 1997). For clarity, we have changed the Staff Report as follows:

> …When the California Department of Pesticide Regulation evaluates whether to register a pesticide product, it must give special attention to the potential for environmental damage, including interference with attainment of water quality standards. The California Department of Pesticide Regulation is mandated to protect water quality from environmentally harmful pesticide materials~~. The Water Board considers~~, which should include pesticides used such that their runoff violates ~~or poses a reasonable potential to violate~~ water quality standards ~~to be environmentally harmful materials~~. The California Department of Pesticide Regulation should also recognize pesticides used such that their runoff poses a reasonable potential to violate water quality standards to be potentially harmful and take preventive action to address foreseeable risks. The Water Board will assist the California Department of Pesticide Regulation in identifying pesticides that could harm water quality.

Page A-7, paragraph 1, sentence 1

This comment refers to the first full paragraph on Basin Plan Amendment page A-7. Mr. Okumura asks that we delete "existing or reasonably foreseeable pesticide-related violations of water quality standards" as an example of adverse effects that endanger the environment. He states that the Department of Pesticide Regulation does not equate "unsubstantiated violations" of water quality standards with environmental endangerment. We agree that assertions not supported by evidence cannot be considered environmental endangerment. However, situations where a violation can be reasonably assumed to exist or is reasonably foreseeable but not yet confirmed with in-creek monitoring should be equated with environmental endangerment because these situations call for mitigation to avoid violations of water quality standards. Water quality standards never allow for pesticide-related toxicity. Therefore, we call on the Department of

Pesticide Regulation to mitigate reasonably foreseeable adverse effects. Irrefutable proof through water quality monitoring that waters are already impaired should not be necessary to trigger action. To provide clear guidance on this matter, the proposed Basin Plan Amendment sets forth what we believe to be the Water Board's view, as the authority on the Region's water quality, regarding what it means to "endanger the environment" from the water quality perspective. For example, if modeling results indicate a reasonable likelihood of water quality standard violations, we would consider that to endanger the environment.

Page A-7, paragraph 1, sentence 3

Mr. Okumura requests clarification regarding our use of the word "uncontrolled," noting that Food and Agricultural Code § 12825 does not use the term. Section 12825 gives the Department of Pesticide Regulation the authority to cancel registrations of products with "demonstrated serious uncontrollable adverse effects" (see Staff Report page 30). Section 12825 does not provide clear direction in the event that adverse effects are uncontrolled but controllable.

The intent of the proposed Basin Plan Amendment is to clarify that the Water Board considers existing and reasonably foreseeable violations of water quality standards to be serious adverse effects worthy of mitigation. We contend that the Department of Pesticide Regulation should seek to control serious adverse effects to the extent that they are controllable. We assert that this is the intent of the Food and Agricultural Code and consistent with the California Environmental Quality Act, which requires agencies to mitigate significant environmental impacts to the extent feasible. We propose that the Water Board, as the authority on the Region's water quality, make clear through the Basin Plan Amendment that, in its view, mitigation is warranted to avoid existing and reasonably foreseeable serious uncontrolled adverse effects. If such effects are sufficiently controlled, we assume that related discharges will meet water quality standards. If controls are insufficient to meet water quality standards, then the resulting adverse effect can be considered uncontrollable, thus triggering Food and Agricultural Code § 12825.

Page A-8, paragraph 1

Mr. Okumura expresses support for collaboration within the California Environmental Protection Agency described in the Basin Plan Amendment. He notes, however, that the Department of Pesticide Regulation's ability to work with the Water Board in this way will depend on available resources and the number and complexity of water quality problems the Water Board identifies. No response to this comment is necessary.

BAYKEEPER, PESTICIDE ACTION NETWORK, AND CLEAN WATER ACTION

Introductory Comments

On behalf of Baykeeper, Pesticide Action Network, and Clean Water Action, Sejal Choksi praises Water Board staff for soliciting feedback early in strategy development. She then outlines a number of areas for improvement, which she discusses in specific comments. We respond to these comments below, using the same headings found in her letter.

I. Explicitly address new evidence of pesticide-related toxicity in creek sediments

Ms. Choksi endorses our approach of developing a strategy that addresses pesticide-related water quality concerns in general and does not simply focus on diazinon. She also endorses our approach of applying the strategy to all Bay Area creeks. However, she asks that we better explain how proposed actions will eliminate new sources of toxicity. Specifically, she asks that we require educational materials regarding pyrethroids to be made available at retail outlets and that we require urban runoff management agencies to send residential consumers fliers about pesticides, water quality, and alternatives.

We agree that urban runoff management agencies and others should conduct outreach through retail establishments, and that they should educate consumers about pesticide risks and less toxic alternatives. Most urban runoff management agencies are implementing such measures. As noted in the comment, urban runoff management agencies and others have already developed many excellent outreach programs (see Staff Report pages 103 and 104). However, we believe the proposed Basin Plan Amendment also strikes the right balance between providing specific guidance and allowing flexibility in responding to pesticide-related water quality problems. Additional detail is more appropriate in urban runoff permits, which are revised and updated regularly.

II. Require meaningful actions for Urban Runoff Agencies

a. Remove shield

Ms. Choksi discusses the need for numeric effluent limits, the extent to which urban runoff management agencies should be responsible for meeting urban runoff allocations, and the extent to which existing permit required actions protect water quality. We respond to these topics below. Ms. Choksi also contends that the federal Clean Water Act overrides the California law that restricts local and regional regulation of pesticide use. She asserts that the Clean Water Act authorizes urban runoff management agencies to regulate at least some aspects of pesticide use if necessary to meet water quality standards. We respond to more detailed remarks on this subject beginning on page 38.

Ms. Choksi contends that the Clean Water Act requires numeric effluent limits in National Pollutant Discharge Elimination System (NPDES) permits, citing Code of Federal Regulations, Title 40, § 122.44(d)(1)(iii), which states, "When the permitting authority determines…that a discharge causes…or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria…for an individual pollutant, the permit must contain effluent limits for that pollutant." This regulation, however, does not mandate that effluent limitations be numeric. In fact, there is no legal requirement that effluent limitations be numeric (see, for example, *Communities for a Better Environment et al. v. State Water Resources Control Board* [2003] 109 Cal. App. 4th 1089). Narrative effluent limits are permissible and consistent with current practice for the regulation of urban runoff discharges. The existing Basin Plan states, "Since both the sources of pollutants in stormwater discharges and the points of discharge are diffuse, and the methods of reducing pollutants in stormwater discharges are in the development stage, water quality-based numerical effluent limitations are not feasible at this time."

Ms. Choksi objects to the sentence in the proposed Basin Plan Amendment that reads, "Urban runoff management agencies' and similar entities' respective responsibilities for addressing these allocations and targets will be satisfied by complying with the requirements set forth below." She says this sentence is a "shield" for urban runoff management agencies and undermines the Water Board's ability to adaptively implement the strategy. We disagree. The sentence provides regulatory clarity by indicating how compliance with the targets and allocations is to be accomplished and measured. It in no way undermines the Water Board's ability to adaptively implement the strategy. Nevertheless, we do not object to revised language similar to that proposed. We have changed the proposed Basin Plan Amendment (page A-10) as follows (also see changes on page 53 in response to comments from the Bay Area Stormwater Management Agencies Association):

> …Urban runoff management agencies' and similar entities' respective responsibilities for addressing these allocations and targets will be satisfied by complying with the requirements set forth below and permit-related requirements based on them.
>
> Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pesticides in urban runoff to the maximum extent practicable and remain consistent with the section of this chapter titled "Surface Water Protection and Management—Point Source Control - Stormwater Discharges." These requirements shall be included in permits no later than five years of the effective date of this strategy. If these requirements prove inadequate to meet the targets and allocations, the Water Board will require additional control measures or call for additional actions by others until the targets and allocations are attained.

Finally, Ms. Choksi claims that since many of the requirements set forth in the proposed Basin Plan Amendment for urban runoff management agencies are already in some

permits, the proposed Basin Plan Amendment does not require these agencies to do enough to avoid water quality impairment. We agree that many requirements in the proposed Basin Plan Amendment are already being implemented, but it is too early to conclude that these actions are insufficient. They have only been phased in over the last few years (see Staff Report page 103). Moreover, as indicated in the proposed Basin Plan Amendment (page A-5), we do not expect urban runoff management agencies to single-handedly solve pesticide-related water quality problems. Their contributions are important and necessary, but the actions of others will also be needed to ensure attainment of water quality standards. Therefore, the Basin Plan Amendment calls on many other parties, including USEPA and the California Department of Pesticide Regulation, to do their parts to protect water quality.

b. Require at least status quo, if not more

Ms. Choksi contends that the proposed Basin Plan Amendment requires less of urban runoff management agencies than some permits already require. She asserts that the Basin Plan Amendment will limit some types of actions. She asks that the text be revised to identify the full range of activities currently required in existing permits. She specifically calls out a need for permits to require written records documenting why permittees choose not to implement least toxic alternatives when established Integrated Pest Management programs exist, and to require pollutant source control actions for new development and redevelopment projects. She adds that the Basin Plan Amendment should specifically include pesticide control activities identified in federal storm water regulations. She asserts that federal regulations authorize urban runoff management agencies to require others to require or otherwise implement Integrated Pest Management.

We disagree that the proposed Basin Plan Amendment requires less of urban runoff management agencies than existing permits require. The Basin Plan is not intended to provide exhaustive detail regarding permit requirements. The Basin Plan provides guidance and direction for the more specific permit requirements. It provides direction with sufficient flexibility to implement water quality standards effectively and efficiently. As stated above, we believe the proposed Basin Plan Amendment strikes the right balance between providing specific guidance and allowing flexibility. Additional detail is more appropriate in storm water permits, which are revised and updated regularly.

There is no basis for the assertion that the proposed Basin Plan Amendment would not allow permitees to work with school districts, discourage pesticide use in new development, or recognize professionals who practice less toxic pest control. The Basin Plan Amendment is intended to promote innovative efforts to ensure that water quality standards are met. It already identifies the full range of appropriate urban runoff management agency activities. We believe providing more detail in this context is unnecessary and inappropriate. Details are best left to permits, which can more easily be updated to reflect the latest best management practices.

Because the proposed Basin Plan provides no exceptions to the use of Integrated Pest Management and less toxic pest control, we see no need for permits to explicitly require documentation when permittees choose not to implement Integrated Pest Management and less toxic pest control. (Requiring Integrated Pest Management is not the same as banning pesticide use; Integrated Pest Management is a process used to ensure that pesticides are only used when no better alternatives exist.)

Regarding new development and redevelopment projects, we deleted previous references to pollutant source control actions from the proposed Basin Plan Amendment because they were redundant with current urban runoff permit requirements. They also did not focus on pesticides specifically, except for a call for pest-resistant landscaping. We deleted that requirement because a number of stakeholders expressed concern about inadvertently decreasing the diversity of landscape plants used in the Bay Area and possibly promoting a landscape monoculture that could eventually be more prone to pest infestation than a more diverse landscape. Other concerns related to possible conflicts with programs promoting native landscaping and drought-resistant landscaping.

We believe the proposed Basin Plan Amendment is consistent with Code of Federal Regulations, Title 40, § 122.26(d)(2)(iv), which requires urban runoff dischargers to implement programs that reduce, to the maximum extent practicable, pollutants associated with the application of pesticides, herbicides, and fertilizer. Specifically, the Basin Plan Amendment calls for controls, such as educational activities and other measures, for commercial applicators, distributors, and municipalities. There is no legal need to reiterate verbatim the specific requirements of federal regulations in the Basin Plan because these regulations apply regardless and must be implemented during permitting. Regarding federal regulations authorizing urban runoff management agencies to require others to implement Integrated Pest Management, our response to more detailed comments on this topic begins on page 38.

c. Require enforcement of non-stormwater discharges

Ms. Choksi states that under the Clean Water Act, municipal storm water permits must effectively prohibit non-storm water discharges and that municipalities must characterize, identify, detect, and prevent illicit discharges into storm drains. She argues that this is a strict prohibition on non-storm water discharges into storm drain systems and that it encompasses pesticide applications to building exteriors, walkways, and other impervious surfaces that could be washed or carried by runoff into the storm drains. She proposes that the Basin Plan Amendment codify this prohibition and explicitly require urban runoff management agencies to enforce this prohibition by identifying and eliminating illicit discharges into storm drains, implementing education and outreach programs that warn of the prohibition, and developing a plan to enforce this prohibition.

We disagree that the prohibition is as strict as Ms. Choksi argues or that it extends to prohibiting pesticide applications to building exteriors, walkways, and other impervious surfaces that *could* be washed into storm sewers. Clean Water Act § 402(p)(3)(b) requires municipal storm water permits to include requirements to "*effectively*" prohibit

non-storm water discharges into the storm sewers. In other words, non-storm water discharges are not completely banned. Furthermore, the federal regulations requiring municipalities to develop programs to identify and prevent illicit discharges into storm sewers are not tantamount to an authorization for municipalities to ban the applications of pesticides to impervious surfaces that potentially run off to storm sewers. We agree that effectively prohibiting non-storm water discharges is crucial, and we will ensure that storm water permits contain what is required under the Clean Water Act. However, we cannot mandate Clean Water Act prohibitions that do not exist. Finally, we note that banning pesticide applications outright would be inconsistent with the Integrated Pest Management approach we advocate. Integrated Pest Management allows the use of pesticides when no better alternatives exist. Banning a particular pesticide could result in the use of alternative pesticides with similar or worse health or environmental impacts.

II. Require specific actions using Water Board authority: Water Board has the authority to regulate pesticides and should do so through NPDES permits and by other means

a. Water Board has authority

Ms. Choksi notes that California Food and Agricultural Code § 11501.1 is often cited as a barrier to local pesticide regulation. This law prevents municipalities from regulating the sale and use of pesticides, even when pesticide applications result in local water quality impacts. She contends that this law should not be interpreted to completely restrict local agencies from implementing measures necessary to protect water quality. She notes that California Food and Agricultural Code § 11501.1 does not limit the ability of state agencies, like the Water Board, to enforce the laws they are responsible for implementing. She contends that because the Water Board is responsible for implementing the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act, the Water Board can adopt and implement pesticide-related regulations necessary to protect water quality. Ms. Choksi requests that we add the following to the Basin Plan Amendment:

- The TMDL is promulgated by a state agency pursuant to federal TMDL requirements, and the resulting urban runoff management agency requirements are based on the federal NPDES program.
- Federal pesticide label requirements do not necessarily protect water quality.
- The Water Board has authority to take actions to reverse pesticide-related impairment.

We agree that California Food and Agricultural Code § 11501.1 does not limit the Water Board's ability to protect water quality. However, the Basin Plan Amendment need not include Ms. Choksi's three points. The Staff Report (page 118) is clear in stating that the Water Board's authority to adopt the strategy comes from the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act. The Basin Plan Amendment (page A-10) refers to NPDES permits, which are issued under federal authority. Similarly, the Basin Plan Amendment (page A-2) states, "pesticide regulatory programs,

as currently implemented, allow pesticides to be used in ways that threaten water quality." The Staff Report (page 29) describes the Water Board's authorities, but these need not be repeated in the Basin Plan.

b. Water Board should not cede this authority

Ms. Choksi expresses support for the proposed Basin Plan Amendment statement (page A-9) that the Water Board could consider the need to use its own regulatory authorities to control pesticides discharges if the Department of Pesticide Regulation does not ensure that water quality standards are met. However, she wonders what the Water Board might do. She suggests that by leaving decisions regarding pesticide toxicity to the Department of Pesticide Regulation, the Basin Plan Amendment may cede the Water Board's responsibilities to another agency. She asks that text be added to explain the following:

- How long the Water Board will wait for the Department of Pesticide Regulation to act
- How the Water Board will decide if the Department of Pesticide Regulation is insufficiently protecting water quality, and
- What the Water Board will do if the Department of Pesticide Regulation does not protect water quality.

If water quality is being or has the potential to be impaired by pesticide use, Ms. Choksi suggests that the Water Board notify the Department of Pesticide Regulation and take interim actions, including warning local agencies, requiring control measures, researching and suggesting alternative controls, and restricting relevant pesticide use.

The Water Board will not cede any authorities to another agency. We retain responsibility for interpreting attainment of water quality standards and the proposed targets. The proposed Basin Plan Amendment (page A-8) does not leave decisions regarding pesticide toxicity to the Department of Pesticide Regulation. The Basin Plan Amendment assigns responsibility to the Water Board to "identify evaluation criteria that can be used to discern whether water quality standards are met" and to "evaluate available information to determine whether water quality standards are met." We are not ceding any responsibilities when we call on the Department of Pesticide Regulation to consider our evaluation criteria when evaluating whether water quality standards are likely to be met. Likewise, we cede no responsibilities when we ask the Department of Pesticide Regulation to evaluate possible corrective actions in light of the Water Board's evaluation criteria.

The time it will take for the Department of Pesticide Regulation to implement actions necessary to protect water quality will depend on each water quality problem addressed. The amount of available information about the problem and its possible solutions is likely to vary significantly. Therefore, placing specific time limits in the Basin Plan is impractical. We prefer to rely more generally on adaptive implementation and the continuing planning process (see Basin Plan Amendment page A-9). We propose to review the strategy roughly every five years through the continuing planning process.

This periodic review will trigger consideration of strategy effectiveness, but nothing will preclude the Water Board from evaluating the collaborative process more frequently. We anticipate a more coordinated process with continuous cooperation between the Water Board and the Department of Pesticide Regulation.

If we were to determine that the Department of Pesticide Regulation were moving ineffectively or too slowly, our likely first course of action would be communicate this finding to the Department of Pesticide Regulation and seek an acceptable resolution. If this were to prove unsuccessful, the we could then seek intervention by the California Environmental Protection Agency, which encompasses the Water Boards and Department of Pesticide Regulation. The Staff Report (page 110) explores possible options if the Water Board were forced to act solely using its own authorities. We could consider any of the options Ms. Choksi suggests, including notifying the Department of Pesticide Regulation, warning local agencies, requiring additional control measures, researching and suggesting alternatives, and restricting relevant pesticide use.

c. Water Board can take concrete actions to use its authority

Referring to the Staff Report (page 110) discussion of an alternative where the Water Board would rely exclusively on its own authorities to address pesticide-related toxicity problems, Ms. Choksi says we dismiss possible actions as inefficient, expensive, and unenforceable. She asserts that using our existing authorities would not pose substantial enforcement challenges and notes that the Water Board could phase in new programs over time.

We believe the proposed Basin Plan Amendment is consistent with the spirit of Ms. Choksi's comments. Although we believe using our existing authorities in new ways could indeed pose substantial enforcement challenges, we agree that we may be able to phase in some new programs, particularly if adaptive implementation shows these new programs are necessary.

Regarding Ms. Choksi's suggested revision, she says we should do as much as possible to gather information about pesticide uses and their effects on water quality. She says the Water Board should exercise its authorities along with seeking Department of Pesticide Regulation action. This could include restricting the use of pesticides that threaten water quality, placing controls on pest management professionals, banning applications of certain pesticides within the Bay Area, requiring best management practices in permits, and insisting that municipalities, school districts, County Agricultural Commissioners, and pest control professionals implement Integrated Pest Management.

We believe the description of proposed collaboration within the California Environmental Protection Agency (Basin Plan Amendment page A-8) demonstrates our commitment to gather information about pesticide uses and their effects on water quality. The Basin Plan Amendment (page A-6) describes the Water Board's role in promoting and

supporting studies to address critical data needs (page A-16) and calls on USEPA (page A-6), the Department of Pesticide Regulation (page A-7), urban runoff management agencies (page A-11), and pesticide manufacturers and formulators (page A-12) to help fill information gaps.

We also believe going beyond the proposed strategy and exercising additional Water Board authorities to restrict pesticide use is premature. USEPA recently implemented its phase-out of most urban diazinon uses, and we have not yet fully explored the water quality problems associated with diazinon replacements. More to the point, we have not yet provided the Department of Pesticide Regulation a chance to resolve our emerging water quality concerns (discussed on Staff Report pages 22 to 25). Through adaptive implementation, we will evaluate the appropriateness of placing controls on pest management professionals or restricting Bay Area pesticide applications.

Ms. Choksi encourages the Water Board to provide guidance regarding what constitutes Integrated Pest Management because she says too many agencies and applicators claim to employ Integrated Pest Management but do not actually do so very well. To this end, she suggests adding a table like Staff Report Table 10.1 (page 80) to the Basin Plan Amendment. She says the Water Board should also include requirements to review and enforce Integrated Pest Management programs as necessary.

We agree that many entities claim to practice Integrated Pest Management but fail to do so rigorously. Promoting Integrated Pest Management is at the core of the proposed strategy. The Basin Plan Amendment (page A-4) includes a definition of Integrated Pest Management that closely follows the University of California Statewide Integrated Pest Management Program's definition. It also spells out best management practices to be in urban runoff permits and calls for municipalities and pesticide users (including pest control professionals) to practice Integrated Pest Management. To provide clearer standards for Integrated Pest Management practices, the Water Boards funded over $1,000,000 in grants to develop Integrated Pest Management standards for structural pest control, a certification program for businesses that wish to offer Integrated Pest Management services, and assistance in marketing Integrated Pest Management services to consumers (see Staff Report Table 12.1, page 100). While we appreciate that Staff Report Table 10.1 (page 80) is helpful in illustrating the Integrated Pest Management process, we do not believe this illustrative table is appropriate for in the Basin Plan. However, we have changed the Basin Plan Amendment (page A-4) to incorporate the essential process illustrated in Table 10.1.

> …The term "integrated pest management," as used here, refers to a process that <u>includes setting action thresholds, monitoring and identifying pests, preventing pests, and controlling pests when necessary. Integrated pest management</u> meets the following conditions:

d. Water Board can and should require NPDES permittees to restrict pesticides where they impact local water quality

i. Section 11501.1 does not limit the Water Board, and federal law preempts any limitation on local agencies implementing Water Board requirements pursuant to federal law

Ms. Choksi argues that, pursuant to the Clean Water Act, the Water Board could condition storm water permits to require a municipality to regulate pesticide use and that, since Food and Agricultural Code § 11501.1 prohibits the municipality from doing so, the Clean Water Act preempts this state law.

Ms. Choksi's federal preemption argument incorrectly applies the federal preemption doctrine. Federal law may supersede state law in three ways. First, Congress may pre-empt state law by expressly stating so (*Shaw v. Delta Airlines, Inc.*, 463 U.S. 85 [1983]). Second, absent express preemption, Congress may indicate its intent to occupy an entire field of regulation, leaving no room for supplementary state regulation (*Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218 [1947]). Third, if Congress has not displaced state regulation entirely, it may nevertheless preempt state law to the extent that state law conflicts with federal law. Such conflicts arise when compliance with both state and federal law is impossible (*Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132 [1963]) or when state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress" (*Hines v. Davidowitz*, 312 U.S. 52 [1941]).

Ms. Choksi relies on the third test to argue that Food and Agricultural Code § 11501.1 is preempted, arguing that *if* the Water Board were to require municipalities to regulate pesticide use, the municipalities would be unable to do so under state law. However, a finding of preemption requires more than a hypothetical conflict—it requires an actual conflict. For example, the U.S. Supreme Court has repeatedly found state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress" when state law clearly compels conduct that federal law forbids or vice versa (see, e.g., *Capital Cities Cable, Inc. v. Crisp*, 467 U.S. 691, 706 [1984]; and *Michigan Canners and Freezers Assn. et al. v. Agricultural Marketing and Bargaining Board*, 467 U.S. 461, 478 [1984]). More to the point, Food and Agricultural Code § 11501.1 does not stand in the way of achieving the full purposes and objectives of the Clean Water Act's requirements for municipal storm water discharges, which require municipal storm water agencies to effectively prohibit non-storm water discharges and to reduce pollutant discharges to the maximum extent practicable. Compliance with this requirement may be achieved despite the existence of this state law.

The federal regulations implementing the Clean Water Act's mandate on municipal storm water discharges are not prescriptive; rather, they afford municipalities much latitude and a menu of options (primarily through storm water management plans) to comply with the federal mandate to effectively control non-storm water discharges and reduce pollutant discharges to the maximum extent practicable. California municipalities' inability to regulate pesticide use does not stand in the way of achieving this federal mandate. In

other words, municipal regulation of pesticide use is but one in a suite of options to control storm water discharges, and just because this option is unavailable does mean municipalities cannot comply with the Clean Water Act. A preemption finding cannot be sustained merely because one option to help comply with the law is unavailable. The law of preemption requires more. Accordingly, a preemption finding cannot be made. Therefore, the Water Board cannot condition storm water permits to require a municipality to regulate pesticide use in violation of Food and Agricultural Code § 11501.1.

ii. Federal regulations require Urban Runoff agencies to have authority to pass ordinances to reduce illicit discharges

Ms. Choksi asserts that the Basin Plan Amendment should require NPDES permits to authorize urban runoff management agencies to fulfill federal obligations. She cites Code of Federal Regulations, Title 40, § 123.25(9), which states, "All State Programs under this part must have legal authority to implement each of the following provisions and must be administered in conformance with each…." She further cites Code of Federal Regulations, Title 40, § 122.26(d)(2)(1)(B), which requires permittees to have authority to "prohibit through ordinance, order, or similar means, illicit discharges to the municipal separate storm sewer."

As a matter of law, the Water Board cannot, in a permit action, confer legal authorities (including its own) to dischargers. We cannot issue permits that require urban runoff management agencies to regulate pesticide use. With respect to the first of the cited regulations, the Water Board itself has legal authority to implement federal regulations pertaining to storm water discharges and exercises that authority in conformance with federal regulations. Regarding the second cited regulation, we agree that urban runoff management agencies are required to demonstrate during the permit application process that they have sufficient authority to prohibit illicit discharges, and the Water Board will ensure that this demonstration is made during the permit process. It is inappropriate for the Water Board, however, to mandate that municipalities have a certain type of ordinance in place to prohibit illicit discharges. In fact, under Water Code § 13360, the Water Board may not prescribe the manner of compliance with a Water Board requirement.

Ms. Choksi recommends that the Basin Plan Amendment require urban runoff management agencies to do the following:

- Regulate pesticide applications on public land by banning those pesticides with the potential to threaten water quality and by requiring all pesticide contractors to employ Integrated Pest Management,
- Adopt Integrated Pest Management ordinances for public properties,
- Study pesticide use and effects in local jurisdictions and use the information to revise ordinances and to educate citizens,
- Adopt zoning and land use ordinances that require commercial pesticide applications to be consistent with Integrated Pest Management principles, and

- Require commercial and residential pesticide applicators to provide advance notice of pesticide applications.

The proposed Basin Plan Amendment already requires urban runoff management agencies to adopt policies, procedures, or ordinances that minimize the use of pesticides that threaten water quality and to track pesticide use within their operations. The Basin Plan Amendment does not require urban runoff management agencies to regulate pesticide use by others, including residential and commercial applicators. It also does not ban any pesticides because doing so would be inconsistent with Integrated Pest Management principles. Specific pesticide bans should be considered thoughtfully. Bans can result in the use of alternative pesticides with similar or worse health or environmental impacts. We believe the level of detail in the proposed Basin Plan Amendment is sufficient and appropriate.

III. Revise adaptive implementation to be a continuous and interactive process

Ms. Choksi asks that the adaptive implementation plan be revised to allow for continuous improvements. She suggests that reviewing strategy implementation every five years will not allow for timely responses to new information. She believes permits should include time-sensitive triggers that require further actions if efforts to attain water quality standards are insufficient. She proposes revising the Basin Plan Amendment to allow review and revision whenever substantial new information becomes available.

The Basin Plan Amendment calls for adaptive implementation, which implies continuous review and improvement. It also calls for formally reviewing strategy implementation through the continuing planning process about every five years. We believe that the five-year review is a sufficient trigger to ensure the effectiveness of the Basin Plan strategy in attaining water quality standards. The Basin Planning process is lengthy and new information arises continuously; therefore, revising the Basin Plan whenever relevant new information becomes available is impractical. This does not preclude continuous improvements, however. The Water Board can choose to amend the Basin Plan at any time if necessary to do so, not just when a specific continuing planning review is underway. Likewise, permits include re-opener clauses that allow the Water Board to revise them whenever necessary. Moreover, urban runoff permits are self-updating in that they require controls to the maximum extent practicable, which is a continuously evolving standard. We expect implementation to be an ongoing process. The five-year framework is intended to provide a defined time frame for formally evaluating whether implementation is taking place as planned and is adequate to attain water quality standards.

IV. Conclusion

Ms. Choksi summarizes her perspective that her comments are reasonable and necessary for Clean Water Act implementation. To the extent that we agree, we state so above.

BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION

On behalf of the Bay Area Stormwater Management Agencies Association, Donald Freitas submitted a cover letter with three attachments: (1) general and specific comments, (2) April 12, 2004 letter commenting on our 2004 Final Project Report, and (3) March 16, 2005 early draft Basin Plan Amendment with suggested revisions. Our responses to these attachments begin on pages 42, 58, and 58.

Mr. Freitas welcomes our acknowledgment that urban runoff management agencies should not be held solely responsible for pesticides discharged from municipal storm drains. He agrees that use of pesticides authorized for sale and use by federal and state pesticide regulators allows pesticide-related toxicity in urban creeks to occur. He therefore endorses our approach of calling on USEPA, the California Department of Pesticide Regulation, and others to help us ensure that pesticide use does not threaten water quality. However, Mr. Freitas expresses concern that, if the actions taken by these agencies do not fully achieve the urban runoff allocations, the Water Board will require permittees to expend significant additional resources to address a problem they cannot solve on their own. He asks that the Water Board postpone Basin Plan Amendment adoption until all stakeholder concerns are addressed.

We agree that pesticide regulators may in the past have been slow to recognize the seriousness of pesticide-related water quality impairment and the role they should play to correct and prevent impairment. However, we have been communicating our concerns to USEPA, and its Office of Pesticide Programs is beginning to work more closely with its Office of Water to better understand and address water quality issues. Moreover, we have been working closely with the California Department of Pesticide Regulation, and together we have gained a much greater understanding of our respective responsibilities and authorities, and how we can best work together to protect water quality.

We worked closely with Department of Pesticide Regulation staff while preparing the Basin Plan Amendment, including the text regarding collaboration within the California Environmental Protection Agency (Basin Plan Amendment page A-8; Staff Report pages 88 to 90). The proposed Basin Plan Amendment provides clear direction to both Water Board and Department of Pesticide Regulation staff for resolving existing and potential pesticide-related water quality problems. The Basin Plan Amendment (page A-9) is also clear, however, in stating, "During adaptive implementation reviews…, the Water Board will consider the extent to which inter-agency collaboration is sufficient to address water quality concerns. If necessary, the Water Board will notify the Department of Pesticide Regulation of deficiencies and could consider the need to use its own regulatory authorities to control pesticide discharges." If inter-agency coordination falls short of expectations, the Basin Plan Amendment does not necessarily call on urban runoff management agencies to expend additional resources. It states on page A-10 that permits are to be based on "an updated assessment of control measures

intended to reduce pesticides in urban runoff to the maximum extent practicable," which may or may not change over time. (Also see our response on page 31.)

As for postponing adoption until we further address stakeholder concerns, we see no reason for delay. Having worked with stakeholders on this issue for the last decade, we believe it is time to adopt a formal strategy to address pesticide-related toxicity. The responses to stakeholder comments set forth in this document address every concern submitted in writing during the final 45-day public comment period. Despite our best efforts, we cannot reasonably expect to resolve all concerns to each stakeholder's satisfaction, particularly since this goal is secondary to our goal of attaining water quality standards. If we please urban runoff management agencies, we fail to please the environmental community; if we please the environmental community, we fail to please the regulatory community. To delay action until all stakeholders are completely satisfied would be to delay indefinitely.

Attachment 1—General and Specific Comments

1. Clearly separate the TMDL from the Water Quality Attainment Strategy

Mr. Freitas refers to Attachments 2 and 3, and our responses begin on pages 58.

Mr. Freitas objects to combining a TMDL and a water quality attainment strategy within one Basin Plan Amendment. He asserts that urban creeks appear on the 303(d) list due to toxicity attributed to diazinon and insufficient data are presented to propose a TMDL that applies more broadly to pesticide-related toxicity through the same Basin Planning action. He further claims that combining a TMDL with a WQAS leads to unnecessary ambiguity. Mr. Freitas then challenges our assumption that the sources and pathways of future pesticide-related toxicity in urban creeks will be similar to the sources and pathways of diazinon-related toxicity. On this basis, he requests that the TMDL apply only to diazinon and that a water quality attainment strategy for pesticide-related toxicity be developed as a separate policy.

We see no reason to separate a diazinon TMDL from the water quality attainment strategy. When we use the term "TMDL," we often mean the water quality attainment strategy that includes the TMDL (e.g., the assimilative capacity and allocations) and its implementation plan. In this sense, a TMDL is a specific type of water quality attainment strategy that meets particular legal requirements. Mr. Freitas interprets the proposed Basin Plan Amendment as combining two separate strategies. In our view, the Basin Plan Amendment contains only one strategy, which we have carefully crafted to include all the components necessary for a TMDL that addresses the 303(d) listings (e.g., source assessment, numeric targets, linkage analysis, allocations).

Staff Report Sections 2 through 4 provide our evidence and rationale for proposing a Basin Plan Amendment that addresses pesticide-related toxicity in urban creeks. The need includes, and extends beyond, the diazinon problem. A narrowly focused diazinon TMDL would fail to address the current risks posed by diazinon alternatives. We

considered such an alternative in the Staff Report (page 109) and found that it failed to meet our project objectives.

The notion that we might separate a diazinon TMDL from the broader strategy appears to be based on an assumption that a diazinon TMDL could ignore all other potential sources of pesticide-related toxicity. We could then rely on USEPA's phase-out of most urban diazinon uses to meet the proposed diazinon target and claim success. Unfortunately, Staff Report Sections 3 and 4 explain that, while diazinon use is declining, the use of diazinon alternatives is growing and posing new water quality concerns. As water quality stewards, we believe we should address this growing problem. Waiting for formal 303(d) impairment listings and mandates to prepare new TMDLs would unduly harm water quality. Consistent with pollution prevention principles, we believe actions to eliminate diazinon-related toxicity should be coupled with actions to minimize threats stemming from phasing out diazinon use. Therefore, *all the components of the water quality attainment strategy are necessary for a diazinon-specific TMDL*.

We believe the intention behind suggesting that we separate a diazinon TMDL from the broader pesticide-related toxicity strategy may be to avoid adoption of the proposed toxicity targets and toxicity-based allocations. Urban runoff management agencies have asked to replace the TMDL-specific term "targets" with the more nebulous term "goals" (see comment Attachment 3). They have expressed a fear that adoption of these targets could result in numeric effluent limitations in NPDES permits. For the record, the proposed Basin Plan Amendment does not call for numeric effluent limitations (see response on page 31). In any case, we would not refer to no-toxicity "goals" when the proposed toxicity targets relate directly to applicable and enforceable water quality objectives that must be met.

Both the diazinon concentration target and the toxicity targets would be appropriate even for a diazinon-specific TMDL. Both types of targets relate to diazinon. The diazinon concentration target relates directly to the diazinon problem, but by itself, it may be insufficient to protect urban creeks from diazinon-related toxicity. It does not address potential interactions between diazinon and other chemicals that may contribute to or intensify diazinon's toxicity; the Basin Plan's toxicity objective is specifically intended to address pollutant mixtures. Selecting multiple targets is consistent with National Research Council recommendations that biological criteria be used in conjunction with chemical and physical criteria to measure whether beneficial uses are achieved (NRC 2001). Because a diazinon-specific TMDL would reasonably include toxicity targets, and because allocations must be consistent with targets, toxicity-based allocations are reasonable, even for a diazinon-specific TMDL. Because the implementation plan must be directed toward achieving the allocations, it must be essentially the same whether we call our proposal a diazinon TMDL or a pesticide-related toxicity strategy. The difference is in name only. In its comments regarding the Basin Plan Amendment, USEPA endorses proposing both types of targets in the TMDL context.

We see long-term advantages in adopting the proposed strategy as written. In addition to protecting water quality today, which is our first priority, we believe the proposed Basin

Plan Amendment includes measures necessary for any future urban pesticide TMDL. Because of emerging water quality concerns (see Staff Report pages 22 to 24), we anticipate new 303(d) listings for pesticide-related toxicity, particularly if we fail to act assertively now. Adopting the Basin Plan Amendment will make it easier for us to address new listings if they occur because it will provide a clear framework for addressing pesticide-related toxicity problems. By preventing future pesticide-related impairment, the strategy could prevent the need to prepare additional TMDLs. If we find that we need to develop new TMDLs (i.e., targets and allocations), the related implementation strategy may be essentially the same as that proposed here because this strategy already includes all necessary actions.

The assertion that the Water Board cannot adopt a TMDL for pesticides other than diazinon until those pesticides are placed on the 303(d) list is unfounded. While Clean Water Act § 303(d)(1)(C) requires a TMDL for listed waters, § 303(d)(3) authorizes states to establish TMDLs for all other waters not listed on the 303(d) list. Moreover, to defer TMDL adoption until the next 303(d) listing cycle would be inconsistent with the purposes of Clean Water Act (§ 101), which include developing and implementing programs to restore and maintain the chemical, physical, and biological integrity of our waters and prohibit discharges of toxic pollutants in toxic amounts. The Clean Water Act reserves California's authority to regulate water quality. Under Water Code § 13242, the Water Board may adopt TMDLs as a program of implementation to achieve water quality objectives, regardless of whether a water body is listed as impaired.

Regarding assumptions about sources of future pesticide-related toxicity, we do not, in fact, assume that the sources and pathways of future pesticide-related toxicity will necessarily always be the same as those of diazinon-related toxicity. However, because foreseeable near-term market changes relate to the diazinon phase-out, we can reasonably assume that replacement pesticides will be used for purposes similar to those for which diazinon has been used. After all, common pest problems and many popular pest control strategies have not changed, despite all our efforts to promote less toxic pest control. Moreover, because many common diazinon products have simply been reformulated with new active ingredients, it seems reasonable to assume that pest control strategies will remain for the time being similar to those used in recent years. Although we cannot necessarily predict what pesticide applications might threaten water quality in the long-term, our broad water quality attainment strategy puts us in the best position to ensure that, in any case, water quality will be protected.

2. Separate the Implementation Plan from the TMDL

Mr. Freitas questions the Water Board's practice of adopting implementation plans at the same time as adopting TMDLs (i.e., the calculated assimilative capacity and allocations). He suggests that since TMDL implementation is a matter of California law, not federal law, combining TMDLs with their implementation plans undermines California's authority and flexibility with regard to TMDL implementation. He implies that, because USEPA must approve TMDLs but not TMDL implementation plans, the Water Board should not submit its implementation plan for USEPA approval.

Clean Water Act § 303(d) does not itself require that implementation plans be adopted with TMDLs. However, § 303(e) requires states to have a "continuing planning process" with plans that include, among other things, TMDLs and adequate implementation, which USEPA must approve or disapprove. Therefore, we find it difficult to comprehend how adopting an implementation plan for a TMDL could be construed as ceding any authority or discretion to USEPA. Even though USEPA must approve the Basin Plan Amendment, the Water Board still exercises its own authority and judgment when it adopts a TMDL implementation plan.

While federal law requires TMDLs, upon USEPA approval, to be included in Basin Plans, state law, in turn, requires that Basin Plans include a program of implementation to achieve water quality objectives (Water Code § 13242). The implementation plan must include a description of actions needed to meet water quality objectives, time schedules to complete the actions, and surveillance measures to determine compliance with standards. Because TMDLs supplement and interpret existing water quality objectives, a program of implementation is required. Neglecting to adopt a TMDL implementation plan is contrary to the Water Code and thwarts the intent of the Clean Water Act to restore and maintain the integrity of the nation's waters. Without implementation, TMDL development would be a mere planning exercise wasting public resources.

Adopting the implementation plan at the same time as the TMDL is advantageous for urban runoff management agencies. We have identified one major source of diazinon and pesticide-related toxicity in urban creeks—urban runoff. Storm drains are point sources subject to NPDES permits. For a water body receiving only point source discharges, a TMDL could be considered self-implementing because federal regulations require NPDES permits to be consistent with TMDL wasteload allocations. Without an implementation plan that explicitly describes the nature of permit requirements, the most likely means of ensuring consistency is to place the allocations directly into permits as numeric effluent limitations. By developing a TMDL and its implementation plan together, however, we retain the Water Board's authority and flexibility to describe how allocations are to be implemented and avoid numeric effluent limits for the time being.

3. Page A-1, paragraph 3: Replace "Compliance with the objective" with "Achievement of" or "Maintenance of" the objective.

We used the word "compliance" because that is the word currently in the Basin Plan; however, we do not object to changing it. Therefore, we have changed the proposed Basin Plan Amendment as follows:

> ~~Compliance with~~ Attainment of this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, or toxicity tests (including those described in Chapter IV), or other methods selected by the Water Board.

4. Page A-2, paragraph 1, last sentence: After "to all San Francisco Bay Region urban creeks," add "listed in the Basin Plan."

The updated list of creeks in the Basin Plan may not be exhaustive. We see no benefit to limiting the applicability of the Basin Plan Amendment to specific creeks when we can just as easily apply it to all urban creeks, as defined in the Basin Plan Amendment (page A-2).

5. Page A-3, Diazinon section: Diazinon target should be consistent with the State's 303(d) Listing Policy.

Mr. Freitas says the diazinon concentration target should be consistent with the State's 303(d) Listing Policy and suggests that the words "once every three years" be added to the target. The concern appears to be that the target is to be met in "*any* one hour period." We prefer not to add an explicit allowable exceedance frequency. We prefer to remain silent regarding the acceptable exceedance frequency and exercise discretion in determining what to do if exceedances occur. We note that the Basin Plan does not explicitly state acceptable exceedance frequencies for its water quality objectives. The listing policy does not dictate an exceedance frequency for targets (SWRCB 2004). Moreover, the exceedance frequency of once every three years is not the same as the listing policy's criteria. Although an exceedance frequency of once every three years is often associated with water quality criteria, the proposed target is derived only in part from the diazinon water quality criteria. The target also includes a margin of safety that may allow a different exceedance frequency to be acceptable. Because the Basin Plan Amendment does not dictate any immediate consequence for exceeding the target, the existence of anomalous exceedances may be of limited concern. To improve clarity, however, we have changed the proposed Basin Plan Amendment (page A-3) as follows:

> The diazinon concentration target is as follows: diazinon concentrations in urban creeks shall not exceed 100 ng/l <u>as a one-hour average</u> ~~during any one-hour period~~. The target addresses both acute and chronic diazinon-related toxicity.

This change is consistent with the Staff Report (page 62).

6. Page A-4, Allocations:

Mr. Freitas suggests replacing the term "storm drain" with "urban runoff" throughout the Staff Report and Basin Plan Amendment. In this way, the allocations would clearly apply to all urban runoff, including overland flow, and not be limited to urban runoff captured by storm drains. Accordingly, we have made the following changes to the Staff Report:

Page ii:

> <u>Urban Runoff</u> ~~Storm Drains~~..... 72

Page S-1:

> …Bay Area urban runoff management agencies and others are responsible for urban runoff ~~storm drain~~ discharges through National Pollutant Discharge Elimination System permits, but California law generally prohibits these agencies from regulating the registration, sale, transportation, or use of pesticides within their jurisdictions….

Page S-2:

> …Pesticides, including diazinon, enter urban creeks primarily through urban runoff ~~discharged from storm drains~~….
>
> …Pesticides are generally discharged to urban creeks ~~through storm drains~~ after being applied outdoors and being washed away ~~to storm drains~~ with urban runoff….
>
> …The total maximum load for each urban creek is allocated to the urban runoff ~~storm drain~~ that discharges into that creek. The allocations are the same as the numeric targets. While this allocation scheme may appear simple, the implementation plan reflects the fact that many parties bear responsibility for pesticide discharges to urban creeks ~~through storm drains~~….

Page 29:

> The Water Boards have the authority to issue and enforce National Pollutant Discharge Elimination System (NPDES) permits for point-source discharges, including urban runoff discharged through storm drains, pursuant to the Federal Clean Water Act….

Page 32:

> Most urban runoff flows through municipal storm drains, which are point sources subject to National Pollutant Discharge Elimination System permits.

Page 43:

> …For purposes of this report, the term "urban runoff" includes all flows from developed areas, including industrial sites, construction sites, and rights of way (e.g., California Department of Transportation highways)…..
>
> For a particular creek, the urban runoff ~~storm drains~~ that flows into the creek is ~~are~~ the immediate source~~s~~ of pesticides to that creek. Storm drains carry most urban runoff and are regulated as point sources….

Page 45:

In the Bay Area, the pesticide runoff that flows ~~through storm drains~~ to urban creeks results from pesticide applications by these pesticide users.

Page 55:

- Pesticides enter urban creeks primarily through urban runoff ~~discharged from storm drains~~.

Page 71:

- Pesticides are discharged to urban creeks ~~through storm drains~~ after being applied outdoors and being washed away ~~to storm drains~~ with urban runoff.

Page 72:

…Essentially the only source of pesticides in Bay Area urban creeks is urban runoff, most of which is discharged from storm drains. Storm drains are point sources; therefore, they must receive wasteload allocations. Because no other significant ~~nonpoint~~ sources exist, no other ~~load~~ allocations are proposed….

Urban Runoff ~~**Storm Drains**~~

The allocations for this TMDL are assigned to ~~for storm drains that carry~~ urban runoff. While this proposed allocation scheme appears simple, assigning responsibility for urban runoff ~~storm drains~~ is complex. Urban runoff management agencies, listed in Table 9.1, represent communities that operate storm drains and are responsible for urban runoff ~~storm drain~~ discharges through National Pollutant Discharge Elimination System permits….

Pages 74 and 75:

…All these parties bear some responsibility for the pesticides discharged in urban runoff ~~through storm drains~~.

Other Sources

~~Storm drains are~~ Urban runoff is the primary source of pesticides to Bay Area urban creeks…. If so, these sources could be given the same allocations given to urban runoff ~~storm drains~~ (the diazinon concentration and toxicity targets). Because the proposed targets are expressed in terms of concentration and toxicity instead of loads, additional sources can be identified and given these

allocations without reducing the allocations assigned to urban runoff ~~storm drains~~.

Page 75:

- ***Source Assessment***. There is relatively little uncertainty in identifying urban runoff ~~storm drains~~ as the primary source of diazinon and pesticide-related toxicity in urban creeks.

Page 76:

- ***Linkage Analysis.*** The linkage between diazinon and pesticide-related toxicity sources (urban runoff ~~storm drains~~) and the proposed targets (toxicity and diazinon concentration in urban creeks) is straightforward and not subject to substantial uncertainty.

Page 77:

- The total maximum load for each urban creek is allocated to the urban runoff ~~storm drains~~ that discharges into that creek….

- While the allocation scheme may appear simple, many parties bear responsibility for pesticide discharges to creeks ~~through storm drains~~.

Page 81:

…Urban runoff management programs will need to reduce urban runoff ~~storm drain~~ discharges as much as possible….

Page 82:

…The Water Board can require certain implementation actions by urban runoff management agencies and similar entities responsible for urban runoff ~~storm drain~~ discharges through National Pollutant Discharge Elimination System permits….

Page 86:

URMA-8 Encourage public and private landscape irrigation management that minimizes pesticide runoff ~~to storm drains~~.

Page 108:

…It includes toxicity and diazinon concentration targets for Bay Area urban creeks and assigns wasteload allocations to urban runoff ~~storm drains~~ to achieve the targets….

Page 109:

> …Like the project, allocations would be assigned to urban runoff ~~storm drains~~, but they would only relate to diazinon….

Page 110:

> The Water Board would impose the proposed permit requirements on urban runoff management agencies and other entities responsible for urban runoff ~~storm drain~~ discharges….

We have made the following changes to the Basin Plan Amendment:

Page A-3:

> Pesticides, including diazinon, enter urban creeks through urban runoff ~~discharged from storm drains~~. Most urban runoff flows through storm drains ~~are~~ owned and operated by Bay Area municipalities, industrial dischargers, large institutions (e.g., campuses), construction dischargers, and the California Department of Transportation (Caltrans)….

Page A-4:

> The TMDL is allocated to all urban runoff ~~storm drains~~, including urban runoff ~~those~~ associated with municipal separate storm sewer systems, Caltrans facilities, and industrial, construction, and institutional sites….

Page A-5:

> …Although the allocations apply to all urban runoff ~~storm drains~~, responsibility for attaining the allocations is not the sole responsibility of urban runoff management agencies, whose authority to regulate pesticide use is constrained….

Page A-10:

> The following general requirements shall be implemented through NPDES permits issued or reissued for urban runoff ~~storm drain~~ discharges:

Page A-11:

> The following education and outreach requirements shall also be implemented through NPDES permits issued or reissued for urban runoff ~~storm drain~~ discharges:…

3. Encourage public and private landscape irrigation management that minimizes pesticide runoff ~~to storm drains~~; and…

The following monitoring and reporting requirements shall also be implemented through NPDES permits issued or reissued for urban runoff ~~storm drain~~ discharges:…

The following requirements related to regulatory programs shall also be implemented through NPDES permits issued or reissued for urban runoff ~~storm drain~~ discharges:

Page A-13:

Monitoring requirements shall be implemented through NPDES permits issued or reissued for urban runoff ~~storm drain~~ discharges.

We have made the following change to the Environmental Checklist:

Page B-12:

The Basin Plan Amendment would include toxicity and diazinon concentration targets for urban creeks, and assign wasteload allocations to urban runoff ~~storm drains~~ (the source~~s~~ of pesticide discharges) to achieve the targets.

7. Page A-4, Implementation, 1st paragraph:

Mr. Freitas asks that we insert text stating that diazinon TMDL implementation will occur automatically as a function of the 2004 USEPA phase-out of urban diazinon applications. We reject this revision because, as explained beginning on page 42, the water quality attainment strategy is one complete and inseparable package. There is no separate TMDL solely for diazinon. Relying only on USEPA's phase-out of most urban diazinon uses is an insufficient implementation plan to address the diazinon and pesticide-related toxicity problem because diazinon replacements are now posing new water quality concerns.

8. Page A-5, Implementation, 2nd full paragraph:

Mr. Freitas supports recognizing that many entities share responsibility for pesticide-related toxicity. Again, he suggests using the term "urban runoff" versus "storm drain." (Refer to our response beginning on page 46.) He asks that we add some specific text, and we have changed the proposed Basin Plan Amendment to include similar text as follows:

Actions that can be required through NPDES permits are already in some permits and shall be incorporated into all applicable NPDES permits when the permits are reissued or by other regulatory actions if appropriate.

9. Page A-5, Water Board Actions:

Mr. Freitas supports the proposed Water Board actions. No response to this comment is necessary.

10. Page A-6 &7, California Department of Regulation Actions:

Mr. Freitas supports the proposed Department of Pesticide Regulation actions. No response to this comment is necessary.

11. Page A-8, 1st set of bulleted items:

Mr. Freitas suggests a fifth bullet item regarding selecting pesticides for further evaluation and notifying the Department of Pesticide Regulation. We believe the existing bullets indicate that information equivalent to that proposed will be gathered, evaluated, and provided to the Department of Pesticide Regulation. The existing text corresponds roughly to the flow chart shown on Staff Report page 89.

12. Page A-10, University of California Actions:

Mr. Freitas supports the proposed University of California actions. No response to this comment is necessary.

13. Page A-10 to 12: Insert a "Mosquito Abatement Districts / Vector Control Districts" section

Mr. Freitas notes that mosquito abatement and vector control districts often apply pesticides that could contribute to pesticide-related toxicity in urban runoff, but they do not come under the authority of urban runoff management agencies. He urges us to consider these operations to be a separate source of pesticide-related toxicity. He recommends inserting a new list of actions into the Basin Plan Amendment.

We do not view mosquito abatement and vector control districts as different from any other entities that apply pesticides within the geographic boundaries of an urban runoff management agency. While it is true that mosquito abatement and vector control districts (like school and transit districts) are not under the authority of urban runoff management agencies, neither are the activities of any private pesticide users (California Food and Agricultural Code § 11501.1). This does not relieve urban runoff management agencies of their responsibilities under Code of Federal Regulations, Title 40, §122.26(d)(2)(iv) to reduce discharges associated with the application of pesticides, herbicides and fertilizer through educational activities, permits, certifications, and other measures. We expect urban runoff management agencies to focus some outreach efforts on these entities.

The proposed actions for mosquito abatement and vector control districts are unnecessary. These districts must already report all pesticide applications to County Agricultural Commissioners, who in turn report them to the Department of Pesticide Regulation. These districts must also obtain NPDES permits to apply aquatic pesticides. Because of the nature of these agencies' mission and mandate, requiring them to use Integrated Pest Management and less-toxic pest control when addressing public health concerns is unlikely to affect their current operations.

To clarify the role of mosquito abatement and vector control districts (and school and transit districts), we have changed the proposed Basin Plan Amendment (page A-12) as follows:

- Pesticide users (e.g., private citizens, professional pesticide applicators, school districts, transit districts, and mosquito abatement and vector control districts) should adopt integrated pest management and less toxic pest control techniques so pesticide applications do not contribute to pesticide runoff and toxicity in urban creeks.

14. Page A-10 & 11, Urban Runoff Management Agencies and Similar Entities Actions:

Mr. Freitas requests the following changes: (a) define "similar entities" in the Basin Plan Amendment, (b) clarify that the "maximum extent practicable" standard applies only to municipal dischargers, (c) add text stating that urban runoff management agency actions will ensure attainment of allocations and targets, (d) clarify that urban runoff management agencies are only responsible for monitoring pesticides discharged through storm drains, (e) clarify that their role in addressing critical data needs is limited, and (f) clarify that the California Department of Transportation is required to contribute to monitoring efforts.

In response to items "a" and "b," we have changed the proposed Basin Plan Amendment (page A-10) as follows (also see changes on page 31 in response to comments from Baykeeper, Pesticide Action Network, and Clean Water Action):

> NPDES permits for urban runoff management agencies and similar entities responsible for controlling urban runoff (e.g., industrial facilities, construction sites, California Department of Transportation facilities, universities, and military installations) shall require implementation of best management practices and control measures….
>
> Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pesticides in urban runoff. Control measures implemented by urban runoff management agencies and other entities (except construction and industrial sites) shall reduce pesticides in urban runoff to the

maximum extent practicable. Control measures for construction and industrial sites shall reduce discharges based on Best Available Technology Economically Achievable. All permits shall remain consistent with the section of this chapter titled "Surface Water Protection and Management—Point Source Control - Stormwater Discharges."

Regarding item "c," Mr. Freitas asks that we restore text from a previous draft of the proposed Basin Plan Amendment. We deleted the text because, as urban runoff management agencies have pointed out, there is no reason to believe that their actions alone will ensure attainment of the allocations and targets. The Basin Plan Amendment (page A-5) already states in reference to *all* the proposed actions (not just those identified for urban runoff management agencies), "Implementing these actions is expected to ensure attainment of the allocations."

Mr. Freitas also asks us to call out our authorities under Water Code § 13267. We have incorporated this change with other changes to the same paragraph. See page 31.

In response to items "d" and "e," we have changed the proposed Basin Plan Amendment (page A-11) as follows:

1. Monitor diazinon and other pesticides discharged in urban runoff that pose potential water quality threats to urban creeks; monitor toxicity in both water and sediment; and implement alternative monitoring mechanisms, if appropriate, to indirectly evaluate water quality as described below (see Monitoring, below);…
3. ~~Complete~~ Contribute to studies to address critical data needs (see Adaptive Implementation, below).

Also in response to items "d" and "e," we have made corresponding changes to Staff Report Table 10.9 (page 86):

URMA-10. Monitor diazinon and other pesticides discharged in urban runoff that pose potential water quality threats to urban creeks; monitor toxicity in both water and sediment; and implement alternative monitoring mechanisms, if appropriate, to indirectly evaluate water quality as described below (see Monitoring, below);…

URMA-12. ~~Complete~~ Contribute to studies to address critical data needs (see Adaptive Implementation, below).

The proposed Basin Plan Amendment already includes actions regarding critical data needs for USEPA (page A-6), the California Department of Pesticide Regulation (page A-7), and pesticide manufacturers and formulators (page A-12).

In response to item "f," we have changed the proposed Basin Plan Amendment (page A-12) as follows:

NPDES permits issued or reissued for industrial, construction, and California Department of Transportation facilities shall implement the general requirements and education and outreach requirements listed above and monitoring requirements as appropriate.

Also in response to item "f," we have made corresponding changes to the Staff Report Table 10.9 footnote (page 86):

* These actions also apply to similar entities. Specifically, the "general" and "education and outreach" actions listed above apply to industrial, construction, and California Department of Transportation facilities. The monitoring requirements also apply to California Department of Transportation facilities as appropriate. All the actions apply to large institutions (e.g., universities and military installations).

15. Page A-13, Monitoring Requirements:

Mr. Freitas suggests some editorial changes. We have changed the proposed Basin Plan Amendment (page A-13) as follows:

- Is ~~any~~ toxicity observed in urban creeks caused by a pesticide ~~or something else~~?…
- How does ~~any~~ observed pesticide-related toxicity in urban creeks (or pesticide concentrations contributing to such toxicity) vary in time and magnitude across urban creek watersheds, and what types of pest control practices contribute to such toxicity?

Likewise, we have made corresponding changes to the Staff Report (page 92):

- Is ~~any~~ toxicity observed in urban creeks caused by a pesticide ~~or something else~~?…
- How does ~~any~~ observed pesticide-related toxicity in urban creeks (or pesticide concentrations contributing to such toxicity) vary in time and magnitude across urban creek watersheds, and what types of pest control practices contribute to such toxicity?

These changes do not limit the responsibility of urban runoff management agencies to determine the cause of toxicity observed in urban creeks only to situations when pesticides cause the toxicity. They do focus the Basin Plan Amendment text specifically on pesticides, which is the subject at hand.

16. Page A-14, Monitoring Benchmarks:

Mr. Freitas contends that the proposed Basin Plan Amendment attempts to define water quality objectives under the guise of proposing a means for calculating monitoring benchmarks. He is concerned that monitoring benchmarks could be used in compliance determinations. He asserts that the concept needs more time for discussion and that the proposal is not supported by sufficient facts in the record. He requests that this portion of the Basin Plan Amendment be deleted or that language be added to clarify that monitoring benchmarks will not be used to determine permit compliance.

The proposal is not a back-door attempt to adopt water quality objectives. The Basin Plan Amendment clearly states the purpose of the monitoring benchmarks: "to determine whether measured or predicted pesticide concentrations in water are cause for concern." We list more specific monitoring benchmark uses in the Staff Report (page 97), and USEPA and the California Department of Pesticide Regulation support these uses in their comments regarding the Basin Plan Amendment. For clarity, we have changed the proposed Basin Plan Amendment (page A-14) as follows:

> …In the absence of water quality criteria, a monitoring benchmark may be calculated as follows. Such a monitoring benchmark is not a water quality objective unless adopted as such by the Water Board. Where valid tests have determined four-day LC_{50} values for aquatic organisms….

We fail to see how the monitoring benchmarks could be used in compliance determinations. The proposed Basin Plan Amendment (page A-10) states, "Urban runoff management agencies' and similar entities' respective responsibilities for addressing these allocations and targets will be satisfied by complying with the requirements set forth below," and the requirements set forth make no reference to monitoring benchmarks.

We do not agree that the monitoring benchmarks concept requires further discussion. We have provided ample opportunity for stakeholders to review the proposal. We included preliminary options in the early draft of the Basin Plan Amendment circulated among stakeholders in March 2005 and discussed these options with stakeholders. Based on feedback (primarily from USEPA), we refined the text and circulated it for scientific peer review. The scientific peer review panel specifically reviewed this part of the proposal and did not object. Upon passing scientific peer review, we provided 45 days for formal public comment.

We do not agree that the method for calculating monitoring benchmarks is not supported by facts. The Staff Report (pages 95 to 97) provides the basis for the method proposed for calculating monitoring benchmarks. The references cited there will be included in the administrative record. No one has provided evidence to suggest a better way to determine what concentrations of pesticides are ecologically relevant in the absence of water quality criteria. Moreover, no one has suggested a rationale to explain why establishing a method to calculate monitoring benchmarks through a Basin Plan Amendment is legally inappropriate.

As Mr. Freitas suggests, one could conceivably use monitoring benchmarks in a weight-of-evidence evaluation of compliance with narrative objectives. However, the Basin Plan Amendment would not require this, and it would not be the same as determining permit compliance, which is evaluated based on each permit's specific provisions. We see no reason to restrict possible future Water Board options by incorporating the suggested language ("Nothing in the design, definition, development, or implementation of this section shall result in the determination that monitoring benchmarks are appropriate for

use in determinations of compliance with NPDES permits for urban runoff management agencies.").

17. Page A-15, Adaptive Implementation

Mr. Freitas reiterates his concern regarding how quickly and effectively pesticide regulators will respond to water quality threats, and the potential for urban runoff management agencies to be required to expend significant resources to mitigate water quality impacts that are beyond their control. Our response begins on page 41.

Mr. Freitas proposes additional text, but we believe text stating that discharges may not meet the allocations is unnecessary. The Basin Plan Amendment does not single out the urban runoff management agencies as solely responsible for meeting the targets and allocations. Moreover, given the authorities vested in USEPA and the California Department of Pesticide Regulation, the ability to achieve the targets and allocations is assured. In our view, text allowing dischargers to prepare thorough accounts of their actions and provide rationales for not implementing additional control measures does not add anything substantive to the Basin Plan Amendment; dischargers are always free to account for their actions, explore the feasibility of additional controls, and propose actions for others to take.

18. Peer Review Comments:

Mr. Freitas contends that stakeholders did not receive adequate time to review scientific peer review comments and responses prior to the close of the public comment period. Health and Safety Code § 57004, which requires scientific peer review, does not prescribe a role for the public to review or comment on the scientific peer review comments and responses. The formal public review process is intended to allow the public to review the proposed Basin Plan Amendment and Staff Report. In the interest of transparent decision-making, we posted the scientific peer review comments and our responses on the Water Board web site as soon as we completed them.

Not all Regional Water Boards undertake scientific peer review prior to public review. For example, the Los Angeles Water Board sometimes undertakes scientific peer review in parallel with public review. We prefer to conduct scientific peer review first, so we have the utmost confidence in the scientific integrity of our work before we subject it to public scrutiny. For this Basin Plan Amendment, we took care to ensure that the public review draft and the Staff Report reflected all changes we intended to make in response to the scientific peer review. Because public review is intended to focus on the proposed Basin Plan Amendment and Staff Report, and because the public review draft reflected all changes made in response to the scientific peer review, we see no reason to provide additional time for comments.

Attachment 2—April 12, 2004 Letter

Attachment 2 contains Bay Area Stormwater Management Agencies Association comments regarding the March 2004 Final Project Report, which preceded the proposed Basin Plan Amendment and Staff Report. We responded to these comments in writing in a document dated December 16, 2004. Our responses are reproduced verbatim in the Appendix. See page 84.

Attachment 3—March 16, 2005 Draft Basin Plan Amendment

Attachment 3 contains a copy of an early draft of the proposed Basin Plan Amendment we distributed in March 2005 to facilitate stakeholder dialog. The document shows Bay Area Stormwater Management Agencies Association comments on that version of the Basin Plan Amendment. It does not, however, provide a rationale for suggesting these revisions. We met with Bay Area Stormwater Management Agencies Association representatives to discuss these comments on March 21, 2005. By submitting this informal draft, we assume Mr. Freitas seeks a formal written response. We respond below, and organize our responses using the page numbers in Attachment 3. Therefore, the page numbers in the headings below are not necessarily the same as those used for the currently proposed Basin Plan Amendment.

Page A-1

The suggested revision replaces the word "compliance" with the word "attainment." See our response on page 45.

Page A-2

The suggested revisions on this page and many of those throughout this version of the Basin Plan Amendment relate to separating a diazinon TDML from the pesticide-related toxicity strategy. See our response on page 42.

Pages A-3 and A-4

The suggested revisions replace the term "target" with the word "goal" on this page and throughout this version of the Basin Plan Amendment to imply that a diazinon TDML exists separately from the pesticide-related toxicity strategy. The intent appears to be to ensure that the Basin Plan Amendment does not include numeric toxicity targets and allocations. See our response on page 42.

A note added to the text recommends against acknowledging that the Petaluma River drains agricultural areas. USEPA is aware that the proposed strategy focuses on urban pesticide sources. Unlike the other 36 creeks on the 303(d) list, the Petaluma River may have some important agricultural pesticide sources. We do not have information confirming whether agricultural practices in this watershed contribute to pesticide-related toxicity. The proposed strategy does not address possible agricultural sources, so it

cannot serve as a TMDL for the Petaluma River. However, since the Petaluma River watershed also includes significant urban lands, the proposed strategy should apply to its urban discharges. In time, the Water Board could obtain information about potential agricultural discharges. Depending on the circumstances, the Water Board could propose removing the Petaluma River from the 303(d) list or developing a TMDL specifically for the Petaluma River. The currently proposed Basin Plan Amendment would facilitate adoption of a Petaluma River TMDL if one were necessary because the proposed strategy addresses its urban sources.

The proposed change suggests that targets be "addressed" instead of "met." We believe such a revision would dilute the strategy. It would eliminate the clear goal that targets actually be met in urban creeks and replace it with a vague requirement to address targets, which may not actually mean meeting them.

Page A-5

A note added to the text identifies pesticide users as sources that should receive allocations. The strategy covers such discharges within the term urban runoff. The currently proposed version of the Basin Plan Amendment also includes explicit references to Department of Transportation facilities and industrial, construction, and institutional sites.

The suggested change uses the term "less" toxic pest management instead of "least" toxic pest management. In the currently proposed Basin Plan Amendment (page A-5), we use the word "less."

Page A-6

The suggested changes mention "other regulatory and non-regulatory actions." The intent of the revision is unclear. Nevertheless, the paragraph has been revised in response to a different comment. See page 51.

Page A-7

The suggested changes add Water Board actions related to the County Agricultural Commissioners and Structural Pest Control Board. These changes are reflected in the currently proposed Basin Plan Amendment (page A-5).

Page A-9

The suggested change adds an action for the Department of Pesticide Regulation, but this list has been rewritten substantially. We believe the call for pest management assessments is inherent in the revised Basin Plan Amendment (pages A-8 and A-9).

Page A-10

A suggested change revises text concerning new development and redevelopment, but that text does not appear in the currently proposed Basin Plan Amendment. We removed references to new development controls because they were are redundant with existing controls and not specific to pesticides. Various stakeholders questioned the wisdom of promoting "pest-resistant landscaping" due to fears that today's pest-resistant landscaping could become tomorrow's pest-prone monoculture. The proposed Basin Plan Amendment (page A-11) now refers to encouraging landscape irrigation management that minimizes pesticide runoff.

A suggested change relates to sharing monitoring data with pesticide regulators. This change is already reflected in the proposed Basin Plan Amendment (page A-11).

Pages A-11 and A-12

The suggested changes relate to urban runoff management agency tracking of pesticide-related regulatory activities. They are already reflected in the proposed Basin Plan Amendment (page A-11).

Proposed changes also suggest that County Agricultural Commissioners and the Structural Pest Control Board should report to the Water Board as they implement their proposed actions, but we do not wish to place a reporting burden on these agencies.

A note suggests a need to address the California Department of Transportation, which we have done in the currently proposed Basin Plan Amendment (page A-12).

Pages A-13 and A-14

A note suggests that we list examples of pesticide users, but we do not see the need.

Suggested changes affect the monitoring questions, which have been rephrased several times and already reflect this input. The latest changes are shown with the response on page 55.

Suggested changes also list examples of regional approaches, but we do not see the need for this detail.

A number of suggested changes relate to the monitoring program, and these are already reflected in the proposed Basin Plan Amendment (page A-13).

Pages A-16 and A-17

The suggested revisions delete text regarding monitoring benchmarks. This text has been refined substantially in the currently proposed Basin Plan Amendment (page A-14). Also see our response on page 55.

ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM

On behalf of the Alameda Countywide Clean Water Program, James Scanlin expresses his support for our emphasis on pollution prevention and notes the need to better address water quality in federal and state pesticide regulatory programs. He also incorporates by reference the Bay Area Stormwater Management Agency Association comments. Our responses to those comments begin on page 41.

SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM

On behalf of the Santa Clara Valley Urban Runoff Pollution Prevention Program, Adam Olivieri refers to comments the Bay Area Stormwater Management Agencies Association submitted previously, including comments regarding our September 2002 Preliminary Project Report and our March 2004 Final Project Report (Exhibit A). He also refers to a markup of an early draft of the proposed Basin Plan Amendment with suggested revisions (Exhibit B). Don Freitas submitted the same markup on behalf of the Bay Area Stormwater Management Agencies Association. Our responses to these comments begin on pages 65 (Exhibit A) and 67 (Exhibit B).

Dr. Olivieri asserts that we cast aside these previous comments without clear and meaningful responses. The comments on the September 2002 Preliminary Project Report were submitted informally. We were under no obligation to respond and did not respond in writing. We did, however, thoughtfully consider these comments as we drafted the March 2004 Final Project Report. The comments on the March 2004 Final Project Report were also submitted informally, and we were under no obligation to respond to them; however, we did respond in writing on December 16, 2004 (see Appendix, page 84). These comments and our responses to them will be included in the administrative record.

In footnote #2 of Dr. Olivieri's letter, he says one of the goals of the previously submitted comments was to obtain safe harbor for urban runoff management agencies. We see no evidence suggesting that the Clean Water Act allows for any safe harbor. Code of Federal Regulations, Title 40, § 122.26(d)(2)(iv) requires urban runoff permittees to implement programs "to reduce, to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities."

Dr. Olivieri asserts that urban runoff management agencies bear little responsibility for pesticides discharged through storm drains because individuals and businesses not under the direct control of the urban runoff management agencies actually apply the pesticides. However, urban runoff management agencies represent *all* the individuals and businesses operating within their jurisdiction and therefore bear responsibility on behalf of these individuals and businesses. In the Staff Report (page 33), we acknowledge the awkward position in which this leaves urban runoff management agencies, particularly in light of the California law limiting the ability of these agencies to regulate pesticide use.

Dr. Olivieri objects to our approach of meeting TMDL requirements by incorporating TMDL elements within the framework of a broader water quality attainment strategy. He

contends that our approach is legally improper, but fails to provide support for his assertion other than to point out that the Water Board must comply with federal and state mandates. For a thorough response regarding this matter, refer to page 42.

Dr. Olivieri reiterates many previously submitted comments, and we respond to these concerns below, using the same headings found in his letter.

1) Problem Statement

Dr. Olivieri asserts that before the Water Board establishes a strategy to address pesticide-related toxicity, we should first identify all pesticides currently impairing water quality. We assume he intends that we wait for pesticide-related impairment to occur, place affected waters on the 303(d) list, and then pursue TMDLs. This essentially means focusing exclusively on diazinon right now. We consider this alternative approach in the Staff Report (page 109) but find that it does not meet our project objectives. We prefer our proactive strategy that seeks to avoid future violations of water quality standards. Since the applicable narrative objectives relate to toxicity, we think our strategy should focus on toxicity, which may or may not relate to any particular pesticide. The Water Board is authorized to amend the Basin Plan as necessary to ensure attainment of water quality standards (Water Code § 13242).

Dr. Olivieri suggests that a specific list of pesticides of concern is necessary to evaluate upstream sources. While a more specific list of pesticides of concern can allow for a more detailed analysis of upstream sources, we believe our knowledge of pesticides of concern is sufficient for the proposed strategy. We discuss a number of pesticides of concern in the Staff Report (pages 17 to 25) and discuss their sources (pages 43 to 55). Dr. Olivieri's purpose in mentioning upstream sources appears to relate to his belief that we should hold them responsible for pesticide discharges and hold urban runoff management agencies harmless. We discuss this issue further above on page 62 and below on page 64.

2) Numeric Targets

Dr. Olivieri objects to proposing toxicity targets when the 303(d) listings are for diazinon. He objects to two points of our rationale. We disagree on these two points. First, the diazinon target by itself does not address pollutant mixtures, and second, the diazinon target does not address potential diazinon replacements. For clarity, we should point out that we propose only one diazinon target, not two. We selected the diazinon target in large part based on water quality criteria developed by the California Department of Fish and Game. We also considered additional scientific studies and included a margin of safety. However, we did not account for pollutant mixtures in any way. Contrary to Dr. Olivieri's assertion, the California Department of Fish and Game's water quality criteria were not intended to address pollutant mixtures. The Basin Plan includes a narrative toxicity objective specifically because water quality objectives for individual pollutants cannot account for mixtures.

Dr. Olivieri objects to developing a TMDL target to address potential diazinon replacements, contending that Clean Water Act § 303(d) precludes this. He notes that USEPA did not take this approach in its Newport Bay TMDL. USEPA does in fact endorse our approach in its comments on our proposal. Accepted pollution prevention principles call for efforts to address any new problems caused by actions intended to prevent existing problems.

Dr. Olivieri suggests that we develop the water quality attainment strategy separate from a diazinon TMDL using authorities derived from the Porter-Cologne Water Quality Control Act. Our response begins on page 42. (He also says in footnote #5 that such a strategy must comply with Water Code § 13241, which relates to water quality objectives. The proposed Basin Plan Amendment does not affect water quality objectives, so § 13241 does not apply.)

3) Allocations

Dr. Olivieri asserts that USEPA guidance instructs us to identify pesticide applicators as the sources of pesticide runoff, not storm drains operated by urban runoff management agencies. We note that USEPA does not object to our source assessment or proposed allocations in its comments regarding our proposal. Moreover, we do not find text in USEPA guidance supporting Dr. Olivieri's view. The guidance states, "Sources can be categorized in many ways, including but not limited to discharge source, land use category, ownership, pollutant production process (e.g., sedimentation processes), and/or tributary watershed areas." Elsewhere, it states, "…individual wasteload allocations should be established for each existing or anticipated future point source discharge, including NPDES-permitted stormwater discharges." It also states, "Where feasible, allocations should be expressed in terms of: individual discharge location…, or individual land area subject to management jurisdiction by a single entity" (USEPA 2000). Our source assessment and allocations are consistent with this guidance.

4) Implementation Plan

Dr. Olivieri says intermingling TMDL elements with a water quality attainment strategy results in confusion because one cannot tell which requirements relate to the TMDL and which to the strategy. The proposed Basin Plan Amendment contains only one set of requirements for urban runoff management agencies, and they all apply regardless of whether we call the Basin Plan Amendment a "strategy" or a "TMDL."

Dr. Olivieri suggests that some of our assumptions about future pesticide use patterns may be inappropriate. We respond to this comment on page 44.

Recommendations

Dr. Olivieri offers several recommendations, including that we separate a diazinon TMDL from the pesticide-related toxicity strategy. Our response begins on page 42.

Dr. Olivieri refers to Exhibit B, which contains an early draft of the proposed Basin Plan Amendment with revisions suggested by the Bay Area Stormwater Management Agencies Association. Our responses to these suggestions begin on page 58.

Dr. Olivieri asserts that not heeding his recommendations (e.g., not separating the TMDL elements from the strategy) will place an undue burden on public agencies. Since he suggests separating a TMDL from the strategy, not eliminating one or the other, we disagree that his recommendations could result in the consumption of fewer public resources. He also does not support his assertion that the proposed implementation actions could be misdirected. We have already added most of the urban runoff management agency actions listed in the Basin Plan Amendment (page A-10 to A-12) to existing storm water permits. Perhaps he means less action could be necessary than existing permits require. We do not believe it is appropriate to remove existing requirements from the permits.

Dr. Olivieri suggests that we should postpone consideration of the proposed Basin Plan Amendment if we do not accept his recommendations. As discussed in our response on page 42, we disagree.

Dr. Olivieri states his endorsement of comments submitted by the Bay Area Stormwater Management Agencies Association and the City of San Jose. Our responses to those comments begin on pages 41 and 68.

Exhibit A—March 7, 2003 Letter and April 12, 2004 Letter

Exhibit A contains Bay Area Stormwater Management Agencies Association comments submitted on April 12, 2004 regarding the March 2004 Final Project Report. This portion of Exhibit A is the same as Attachment 2 of the Bay Area Stormwater Management Agencies Association comments. We responded to these comments in writing on December 16, 2004 (see the Appendix, page 84, for our verbatim responses).

Exhibit A also contains Bay Area Stormwater Management Agencies Association comments submitted on March 7, 2003, regarding the September 2002 Preliminary Project Report. These comments were submitted informally. We were under no obligation to respond and did not respond in writing. We did, however, thoughtfully consider these comments as we drafted the March 2004 Final Project Report. We now provide brief written responses below, using the same headings found in the letter.

The expansion of the TMDL for diazinon in San Francisco Bay Area urban creeks to include "pesticide-related toxicity" goes beyond the basis for the 303(d) listing

Mr. Freitas contends that the issue of pesticide-related toxicity should be addressed separately from the issue of diazinon-related toxicity. Our response begins on page 42. In his comment, he states that pesticide-related toxicity other than diazinon toxicity has not been established. As discussed in the Staff Report (pages 22 to 24), recent evidence confirms our long-held concern that pesticides replacing diazinon could pose water

quality risks. Additional supporting evidence continues to emerge. Since publishing the August 2005 version of the Staff Report, pyrethroid toxicity has been documented in Sacramento area urban creeks (Weston et al. 2005).

The proposed numeric toxicity targets for diazinon in Bay Area urban creeks goes beyond the basis for the 303(d) listing

Mr. Freitas contends that the proposed toxicity targets are inappropriate in a diazinon TMDL. This concern relates to the suggestion that we should separate a diazinon TMDL from the pesticide-related toxicity strategy. Our response begins on page 42. As for the USEPA guidance Mr. Freitas cites, it says, "…targets should identify the specific instream goals or endpoints for the TMDL, which equate to attainment of the water quality standard." Mr. Freitas is incorrect in suggesting that this refers to diazinon water quality objectives. In fact, no diazinon-specific water quality objectives exist. Neither the USEPA nor the Water Board has adopted the available diazinon water quality criteria as objectives, so they are not components of water quality standards. The only objectives that apply in this case relate to toxicity (i.e., the toxicity, sediment, and population and community ecology objectives), not diazinon per se.

The proposed allocation scheme ignores the real sources of diazinon discharges

Mr. Freitas claims the proposed strategy seeks to place the entire burden for controlling pesticide runoff on urban runoff management agencies. The proposed Basin Plan Amendment (page A-5) clearly refutes this. Nevertheless, as discussed on page 62, we cannot offer urban runoff management agencies safe harbor from their responsibilities to manage storm drain discharges. Urban runoff management agencies are responsible for activities that occur within their jurisdictional boundaries. Since receiving this comment, however, we have added to the Basin Plan Amendment specific references to discharges from industrial, construction, and California Department of Transportation facilities; universities; and military installations. See our response on page 53.

The proposed implementation plan ignores the effects of U.S. EPA's scheduled phase-out of diazinon's registration

Mr. Freitas's comments relate less to the phase-out of most urban diazinon uses and more to concerns regarding possible water-quality-based effluent limits arising from the adoption of TMDL targets. He makes a case for not requiring numeric effluent limits in urban runoff permits, but although he interprets U.S. Code, Title 33, § 1342(p)(3)(B)(iii) as not allowing numeric effluent limits, we disagree. Case law is clear that the Water Board may, at its discretion, require strict compliance with water quality standards in the form of numeric effluent limitations (*Defenders of Wildlife, et al. v. Browner*, 191 F.3d 159 [1999]). Due to the practical problems of imposing numeric effluent limitations, however, the Water Board has been requiring urban runoff management agencies to use best management practices to attain water quality standards. The proposed Basin Plan Amendment does not depart from tradition. On page A-10, it explicitly states (when changed as shown on page 53), "Urban runoff management agencies' and similar

entities' respective responsibilities for addressing these allocations and targets will be satisfied by complying with the requirements set forth below and permit-related or other requirements based on these requirements," and the requirements set forth do not call for numeric effluent limits. The Basin Plan Amendment continues, "Requirements in each NPDES permit issued or reissued and applicable for the term of the permit shall be based on an updated assessment of control measures intended to reduce pesticides in urban runoff. Urban runoff management agencies and other entities (except construction and industrial sites) shall reduce pesticides in urban runoff to the maximum extent practicable. All permits shall remain consistent with the section of this chapter titled 'Surface Water Protection and Management—Point Source Control - Stormwater Discharges.'" In other words, the Basin Plan Amendment is consistent with the current status quo. (Also see our response on page 31.)

Exhibit B—March 16, 2005 Draft Basin Plan Amendment

Exhibit B contains an early draft of the proposed Basin Plan Amendment with revisions suggested by the Bay Area Stormwater Management Agencies Association. As far as we can tell, Exhibit B is the same as Attachment 3 of the Bay Area Stormwater Management Agencies Association's comments; only the format is different. Our responses to Exhibit B begin on page 58.

CITY OF SAN JOSE

Introductory Comments

On behalf of the City of San Jose, Randolf Shipes lists a number of specific comments. We respond to these comments below, using the same headings found in his letter. Mr. Shipes also reiterates a number of comments made by the Bay Area Stormwater Management Agencies Association and the Santa Clara Valley Urban Runoff Pollution Prevention Program. We respond to those comments beginning on pages 41 and 62.

- He asks that we wait until particular pesticides are recognized as impairing urban creeks before proposing a water quality attainment strategy to address this possibility. Our response is on page 63.
- He asks that we identify pesticides sources upstream of storm drain outfalls and assign allocations to these upstream sources. Our response is on page 64.
- He states that attaining any limit on pesticides in urban runoff is unrealistic as long as pesticides continue to be sold and used. Our response is on page 62.
- He calls for the TMDL to be adopted separately from its implementation plan, and for a diazinon TMDL to be adopted separately from the water quality attainment strategy for pesticide-related toxicity. Our responses are on pages 42 and 44.
- He questions whether future pesticide sources are likely to be similar to diazinon sources. Our response is on page 44.
- He contends that proposing toxicity targets in addition to diazinon concentration targets is inconsistent with USEPA guidance. (For the sake of clarity, only one diazinon concentration target is proposed, not two as stated.) Our response is on page 66, with some additional information on page 63.

Mr. Shipes calls for the USEPA Office of Pesticide Programs and Office of Water to work together to develop pesticide water quality criteria in coordination with pesticide registration. We agree, and the proposed Basin Plan Amendment (page A-6) recommends USEPA actions consistent with this goal. As explained in the Staff Report (page 101), Water Board staff tracks USEPA pesticide registration actions and submits comments related to protecting water quality. In these comments, we have often asked USEPA to better coordinate Office of Pesticide Programs and Office of Water activities.

Page 8, Table 2.2—Footnotes c & d Concerning Diazinon Concentrations < or > 100 ng/L.

Mr. Shipes is concerned that the Table 2.2 footnotes are confusing. We have changed the Staff report as follows (these changes also reflect our response to a comment regarding Staff Report page 63; see page 70):

[c] A diazinon concentration target of 100 ng/l is proposed in Section 7, "Numeric Targets." Water containing only diazinon (not a mixture of toxic substances) can exceed 100 ng/l diazinon without exceeding the toxicity targets.
[d] ~~When~~ Because the two-day LC_{50} for diazinon is about 400 ng/l (USEPA 2000e), when acutely toxic samples contain diazinon concentrations below 100 ng/l, the toxicity is likely caused by some other chemical.

Page 11, Table 2.3

Mr. Shipes assumes that we know the range of means and medians and the total number of samples represented in Table 2.3. Unfortunately, we do not. This table is taken directly from the cited source (SWRCB et al. 1997), which lists only "selected" concentrations, not all concentrations. The median of the concentrations listed in the table is about 370 ng/l. However, we do not know what criteria were used to select these data (i.e., whether the data not selected for inclusion tended to be similar to the selected data), so this median may not be meaningful. The purpose of the table is simply to demonstrate that, at the time, relatively high diazinon concentrations could be found in urban creeks throughout the Bay Area.

Page 22, last paragraph

Mr. Shipes suggests deleting one of two references cited. We include both citations because the more recent document, which is very brief and includes the California Department of Fish and Game's current water quality criteria, refers to data, methodology, and analysis presented in the more detailed older document.

Page 22; last paragraph

Mr. Shipes recommends clarifying the comparison between pyrethroid effects and diazinon effects. We have changed the Staff Report as follows:

> …Depending on the specific pyrethroid tested, concentrations ranging from 70 ng/l to 700 ng/l are toxic to *Ceriodaphnia dubia*. Concentrations within this range have been lethal to 50% of test organisms (Miller et al. 2002). These concentrations are comparable to the diazinon concentrations lethal to 50% of ~~toxic to~~ *Ceriodaphnia dubia* test organisms (about 400 ng/l) (SFBRWQCB 2003a; USEPA 2000e).

Page 62, Paragraph 3

Mr. Shipes notes that a study we cited (Scholz et al. 2000) reported an adverse effect on the ability of some fish to smell when exposed to 1,000 ng/l diazinon, but no adverse effect when exposed to 100 ng/l diazinon. He then calculates what he calls a chronic value, 316 ng/l, based on the geometric mean of the reported values. He states that because this value is higher than the acute and chronic water quality criteria (160 ng/l and 100 ng/l), the water quality criteria are more appropriate targets. He rejects the rationale we set forth for selecting 100 ng/l as the numeric target.

We question the utility or appropriateness of calculating a so-called chronic value. The type of effect evaluated by Scholz et al. cannot be categorized neatly as acute or chronic.

The study exposure duration was very short, like an acute effect, but the endpoint was not mortality. As noted in Mr. Shipes's next comment, USEPA did not rely on this study in developing its water quality criteria. Our goal is to propose a numeric target that implements the narrative objectives and protects beneficial uses. Typically, water quality criteria meet this goal. However, we also need to provide a margin of safety, so we used the Scholz et al. (2000) study to propose a lower value. The proposed target incorporates a greater inherent margin of safety than the water quality criteria.

We prefer the proposed target because it is simpler than the water quality criteria and more consistent with existing monitoring programs, which collect grab samples, not four-day averages. Scientific peer reviewers specifically considered the proposed targets and did not object to the diazinon concentration target as proposed.

Page 62, Paragraph 3

Mr. Shipes wonders why we refer to a study that USEPA did not use in preparing its draft water quality criteria. As stated in the Staff Report, USEPA does not use all types of data when it derives water quality criteria. This does not mean that studies USEPA does not use are irrelevant. The Water Board is within its purview to consider all available information in selecting targets and ensuring that the TMDL includes an appropriate margin of safety. In this case, we considered the Scholz et al. (2000) and Moore and Waring (1996) studies when developing our rationale for the proposed target and its implicit margin of safety. See our response on page 22.

Page 63, first full paragraph

Mr. Shipes suggests referring to a chronic value, but we think this is unnecessary. Our intent in including this paragraph is to help readers who, in reviewing earlier versions, were confused about why samples exceeding the diazinon concentration target might not exceed the toxicity target when using a *Ceriodaphnia dubia* test. They noted that the *Ceriodaphnia dubia* LC_{50} for diazinon is about 400 ng/l, while the proposed target is 100 ng/l, so it is possible to achieve the toxicity target without meeting the diazinon target. Some have suggested that a diazinon concentration above 100 ng/l would be an appropriate target because the toxicity target could be achieved with a higher diazinon concentration. As the Staff Report (pages 56 to 63) explains, the toxicity targets and diazinon concentration target serve different purposes and are independent of one another.

Page 63, first full paragraph, last sentence

Mr. Shipes notes that the wording of this sentence is particularly clear and requests that we add it to Staff Report Table 2.2 (page 8). We have changed the Staff Report as shown in our response on page 68.

Page 95-97, Monitoring Benchmarks

Mr. Shipes notes that cases arise where the toxicity data necessary to derive water quality criteria using USEPA guidance exist, but no one has put forth the effort to compile the data and calculate the water quality criteria. (Even when someone has calculated water quality criteria, they are not necessarily adopted as legally enforceable water quality objectives.) Mr. Shipes asks whether, given these circumstances, monitoring benchmarks should be based on the approach set forth in the proposed Basin Plan Amendment (to do this one would have to assume that only seven data requirements are satisfied, not all eight that are available) or on water quality criteria derived pursuant to USEPA guidance. He notes that, in most cases, monitoring benchmarks calculated using the Basin Plan Amendment method would be lower than water quality criteria, if calculated. He also expresses concern that the proposed Basin Plan Amendment method treats all eight data requirements as equal, when in reality, some families of organisms would be expected to be more or less sensitive to pesticides. He points out that the method used to derive the benchmark factors (see Basin Plan Amendment Table 4-x on page A-14) relies on data for a wide range of pollutants, not just pesticides.

As stated in the Basin Plan Amendment (page A-14), "Ideally, water quality criteria would be used…. In the absence of water quality criteria, a monitoring benchmark may be calculated as follows." The Basin Plan Amendment leaves to professional judgment the decision regarding whether to calculate water quality criteria using USEPA guidance or to calculate monitoring benchmarks using the proposed Basin Plan Amendment method. The decision would likely depend on the availability of data, resources, and expertise to calculate water quality criteria.

If water quality criteria do not exist, the Basin Plan Amendment allows one to calculate monitoring benchmarks by assuming that only seven data requirements are satisfied when in actuality all eight data requirements may be satisfied. The result is likely to be conservative, which may provide an incentive to derive actual water quality criteria. Conservative monitoring benchmarks should be sufficient, however, to determine whether measured or predicted pesticide concentrations are cause for concern, which is our purpose in proposing them.

Mr. Shipes is not entirely correct in asserting that the proposed Basin Plan Amendment method treats all eight data requirements described in USEPA guidance as equal. While it is true that some families of organisms are likely to be more sensitive to pesticides than others, the proposed method prioritizes data representing the daphnid and salmonid families. Data representing these important families must be available to use Basin Plan Amendment Table 4-x (page A-14). Otherwise, the Basin Plan Amendment provides no guidance for determining appropriate monitoring benchmarks.

Regarding the basis for the proposed benchmark factors (see Basin Plan Amendment Table 4-x on page A-14) being toxicity data for a range of pollutants, not just pesticides, we conclude that this approach is sound because pesticides can take many different chemical forms, just like the various types of pollutants USEPA considered in its study

(USEPA 1991). In the same study, USEPA separately considered toxicity data and water quality criteria exclusively for pesticides, but most of the pesticides considered were organochlorine pesticides, which represent a chemically narrow range of pesticides. Therefore, we relied on the more diverse data set.

Page 113, 114 and Table 14.1—Discussion on the costs incurred by EPA to develop Water Quality Criteria (WQC) for a single pollutant (e.g. pesticide).

Mr. Shipes offers cost information for USEPA to develop water quality criteria. For one pollutant, he indicates that USEPA would likely spend roughly $300,000 for staff and roughly $200,000 for contractors. If necessary, it could also spend roughly $100,000 more to generate toxicity data. For a very complex project, the costs could double. The total cost to develop water quality criteria for one pollutant, therefore, could be as high as $1,200,000. It is unclear how many years this cost would be spread over. Mr. Shipes notes that we assumed only one new person-year (PY) for the USEPA Office of Water and concludes that our annual cost estimate is far too low.

We estimate implementation costs of roughly $900,000 per year for USEPA. This assumes that USEPA will heed our call and implement at least some Basin Plan Amendment actions (page A-6). The commitment to implement these actions is unclear. Because the USEPA Office of Water has completed guidance for deriving water quality criteria (USEPA 1985), anyone with appropriate expertise, including the Water Board, can derive these criteria, not just the Office of Water. The USEPA Office of Pesticide Programs could derive them, or more appropriately, the Office of Pesticide Programs could require pesticide registrants to collect necessary toxicity data and derive water quality criteria as a condition of registration. Placing this burden on industry would be consistent with our preference, which we expressed in the Basin Plan Amendment (page A-16) regarding critical data needs. Our economic analysis assumes that Basin Plan Amendment implementation could cost pesticide manufacturers roughly $2,500,000 per year, which would be adequate to develop some water quality criteria.

Mr. Shipes asks what will be done if USEPA and the California Department of Fish and Game do not develop necessary water quality criteria. He recommends that the Water Board develop such criteria based on USEPA guidance. He concludes by reiterating that the approach proposed in the Basin Plan Amendment may be very conservative, and he asserts that causes of creek toxicity could be misidentified.

If USEPA and the California Department of Fish and Game do not develop necessary water quality criteria, the Water Board could develop them or take advantage of the method proposed in the Basin Plan Amendment to calculate conservative monitoring benchmarks. Monitoring benchmarks would be sufficient to determine whether measured or predicted pesticide concentrations are cause for concern, and their conservativism may provide an incentive to derive actual water quality criteria.

Monitoring benchmarks are tools, and like all tools, there is always the potential for someone to misuse them. We think this is unlikely. Monitoring benchmarks may not be

appropriate for establishing a cause of creek toxicity. Toxicity Identification Evaluations (described on Staff Report pages 8 and 9) are appropriate for determining causes of toxicity. Monitoring benchmarks may be useful in focusing monitoring efforts.

Page A-14—"In the absence of water quality criteria, a monitoring benchmark may be calculated as follows."

Mr. Shipes reiterates his assertion that USEPA guidance for deriving water quality criteria should be used whenever all data requirements are satisfied. We agree; this is our preference. We also recognize that it may not always be practical to derive water quality criteria, and in their absence, a simpler method is needed to estimate environmentally relevant concentrations. We discuss this issue in more detail beginning on page 71. Mr. Shipes prefers that we require the water quality criteria approach, but we think this is unnecessarily complicated and our intent is to provide additional guidance, not to subvert good professional judgment. The portion of the Basin Plan Amendment regarding monitoring benchmarks is permissive. It offers a method that *may* be used. We do not intend it to dictate the specific values professionals may wish to use to evaluate their monitoring data.

Concluding Remarks

Mr. Shipes resubmits comments previously offered regarding the March 2004 Final Project Report (Attachment). Our response is below.

Mr. Shipes also cites comments made by the Bay Area Stormwater Management Agencies Association and the Santa Clara Valley Urban Runoff Pollution Prevention Program. We respond to those comments beginning on pages 41 and 62.

Finally, Mr. Shipes requests another 30 days to review our responses to the scientific peer review comments. We believe an extension is unwarranted, as explained in our response on page 57.

<u>Attachment—April 12, 2004 Letter</u>

Mr. Shipes attached the City of San Jose comments submitted regarding the March 2004 Final Project Report. We responded to these comments in writing on December 16, 2004. Our verbatim responses are reproduced in the Appendix (page 86).

CALIFORNIA
DEPARTMENT OF TRANSPORTATION

On behalf of the California Department of Transportation, Michael Flake notes that Department of Transportation properties comprise only about 0.7% of the San Francisco Bay Region's watershed and do not discharge diazinon. Therefore, he requests that the Water Board not assign the Department of Transportation a wasteload allocation.

The Basin Plan Amendment (page A-4) assigns the Department of Transportation a wasteload allocation because, without one, its implicit allocation would be zero. This could frustrate future permitting actions, particularly since the Department of Transportation does apply pesticides other than diazinon (e.g., herbicides) and could discharge pesticides in runoff. As with other dischargers, the Basin Plan Amendment (pages A-11 and A-12) calls out specific actions for the Department of Transportation to minimize the potential for pesticide-related toxicity resulting from its discharge.

BIG VALLEY TERMITE

On behalf of Big Valley Termite, Jerry Farris notes in his cover email his support for Integrated Pest Management, but says the proposed strategy is too vague and focuses on the wrong cause of ground water pollution. (We assume he means surface water since it is the focus of the Basin Plan Amendment.) He asserts that if pest control professionals are mandated to provide Integrated Pest Management services, consumers will turn to over-the-counter products and probably be less inclined to follow label instructions than professionals. He recommends focusing on consumer education.

We agree that educational efforts are needed to create consumer demand for Integrated Pest Management and less toxic pest control. Much of the education and outreach the Basin Plan Amendment (pages A-10 and A-11) calls for focuses on such outreach. However, the Basin Plan Amendment (page A-12) does not require pest control businesses to provide Integrated Pest Management services. It does encourage pesticide users, which include both professionals and private citizens, to voluntarily adopt Integrated Pest Management and less toxic pest control.

Attachment—September 16, 2005 Letter

Mr. Farris reiterates his support for Integrated Pest Management, but expresses disappointment with the Basin Plan Amendment. He notes that he and a Pest Control Operators of California representative have attended meetings and provided industry input, but little of their input was included.

Mr. Farris is apparently confusing his participation in two Proposition 13 grant funded projects with the Water Board's stakeholder process. The Water Board funds two related grants (see Staff Report Table 12.1 on page 100): "Pest Control Operator Integrated Pest Management Partnership" (implemented by the Bio-Integral Resource Center) and "Making IPM Mainstream: Tools and Market-Based Incentives for Improving Urban Water Quality" (implemented by the Association of Bay Area Governments). These projects are intended to support implementation of the proposed strategy. They include their own stakeholder forums, but they are not stakeholder forums for development of this strategy.

In recent years, the Urban Pesticide Committee has served as the stakeholder forum for our strategy development (meetings take place bimonthly, and all are welcome). Until now, Mr. Farris has not participated in the Water Board's stakeholder process for the strategy. Neither Mr. Farris nor the Pest Control Operators of California representative he mentions has attended any Urban Pesticide Committee meeting within the last two years.

We respond to Mr. Farris's remaining comments below, using the same numbering scheme found in his letter.

1. Mr. Farris contends that the Basin Plan Amendment is overly vague. We believe it strikes the right balance between providing specific guidance and allowing flexibility in implementation. It is specific where it must be and flexible where it can be.

2. Mr. Farris objects to our call for the Structural Pest Control Board to provide a mechanism that allows consumers to identify structural pest control providers that offer services likely to protect water quality. Current Structural Pest Control Board regulations make it illegal for pest control providers to make environmental claims, even if their claims are substantiated. If structural pest control professionals offer Integrated Pest Management services certified by an independent authority, such as the Association of Bay Area Governments, they cannot advertise the water quality benefits of this approach. Therefore, we believe existing Structural Pest Control Board regulations are unnecessarily restrictive and deprive the public of helpful information.

   Mr. Farris asks for specifics regarding what changes to Structural Pest Control regulations we are calling for. The Basin Plan Amendment (page A-10) calls on the Structural Pest Control Board to implement three actions (i.e., ensure that discharges comply with water quality standards, develop a mechanism consumers can use to identify providers that protect water quality, and enhance training requirements). We prefer not to be more specific because we prefer to allow the Structural Pest Control Board to decide how best to address each issue. We assume that the Structural Pest Control Board is more capable of considering and accommodating the concerns of its regulated community than the Water Board, and that the Structural Pest Control Board would not adopt regulations that would allow unsubstantiated or misleading environmental claims.

3. Mr. Farris refers to Figure 6.3 (Staff Report page 46) and notes that it does not indicate how much diazinon reaches ground water. He asserts that the extensive training structural pest control professionals receive results in less runoff than over-the-counter applications and calls for more consumer education.

   Staff Report Figure 6.3 summarizes diazinon use, by user group, from 1995 through 1999. It is not intended to show the relative potential for pesticide runoff to surface or ground water associated with each user group. The Staff Report (pages 49 to 55) seeks to provide some insight into the relative potential for runoff from different types of pesticide applications.

   Mr. Farris asserts that the Basin Plan Amendment would mandate Integrated Pest Management certification for professionals. (In a subsequent discussion with him, he explained to us that he believes that, if a voluntary certification program exists, the public will demand certification and uncertified businesses will be forced to seek certification to remain competitive.) He asks who will certify pest control professionals and indicates that we have said the Structural Pest Control Board should

administer a certification program. He says the $150,000 cost we estimated for the Structural Pest Control Board is insufficient to support such a program.

The proposed Basin Plan Amendment would not mandate that pest control professionals seek Integrated Pest Management certification, and we do not share Mr. Farris's view that a certification program will likely be so successful that essentially all structural pest control providers will be forced to seek certification. The proposed Basin Plan Amendment does require urban runoff management agencies and similar entities to practice Integrated Pest Management, which we expect will increase demand for Integrated Pest Management services. Integrated Pest Management certification could be particularly helpful to municipalities wishing to ensure that the professionals they hire meet some minimum standards for practicing Integrated Pest Management. Therefore, we are grateful to the Association of Bay Area Governments for accepting a Proposition 13 grant to develop a pilot certification program. We have not stated that the Structural Pest Control Board should administer a certification program, although we would not object if it wanted to take on such a commitment in the future. In deriving our cost estimate (Staff Report page 115), we did not assume that the Structural Pest Control Board would implement an Integrated Pest Management certification program. The estimated $150,000 assumes Structural Pest Control Board staff could work with stakeholders and propose changes to existing regulations for Structural Pest Control Board consideration.

4. Mr. Farris objects to mandatory Integrated Pest Management training and wonders who will offer this training and how it will be paid for. Our proposed Basin Plan Amendment (page A-10) calls on the Structural Pest Control Board to work to enhance its existing training requirements. The Structural Pest Control Board already mandates training and recognizes continuing education credits offered by a number of entities. Fees vary. Integrated Pest Management training could be wrapped into existing training requirements. Water Board staff have contributed to such training in recent years at no cost to those organizing the training.

5. Mr. Farris notes our concerns regarding many common pesticides (see Staff Report pages 17 to 25), but complains that we do not offer any alternatives. Although we are concerned about the potential water quality risks posed by some pesticides, we recognize that pesticides are called for in some circumstances. We advocate Integrated Pest Management practices because they seek to control pests through biological control, habitat manipulation, and other practices, and rely on targeted pesticide applications only when better options are unavailable. Our goal is not necessarily to switch to alternative chemical controls.

Mr. Farris states that the Water Board could help the environment and pest control professionals by encouraging the public to hire professionals. We prefer not to go that far, particularly without minimum standards for Integrated Pest Management practices.

CALTEST ANALYTICAL LABORATORY

On behalf of Caltest Analytical Laboratory, Pete Halpin mentions that our call for monitoring explicitly assumes that commercially viable analytical methods will be available (Staff Report page 94). Mr. Halpin notes that Caltest Analytical Laboratory has been providing pyrethroid analyses at environmentally relevant levels since October 2004. In the Staff Report (page 36), we explain that commercial pyrethroid analytical tests are a recent development. They are improving but not always adequate. One of our sources of information (SFEP 2005b) specifically evaluated the analytical services that Caltest Analytical Laboratory and others offer. Existing capabilities are improving. We also recognize, however, that as new pesticides enter the marketplace, new analytical methods will be needed.

Attachment 1—August 30, 2005 Documents

Mr. Halpin attached some background information to support his comments (i.e., information about pyrethroid analysis). No response to this attachment is necessary.

Attachment 2—Summer 2005 NorCal SETAC News

Mr. Halpin attached a copy of the NorCal SETAC newsletter with two articles about pyrethroid analysis in water and sediment. No response to this attachment is necessary.

STAFF INITIATED TEXT CHANGES

We have made the following minor corrections on our own initiative.

Staff Report Table 9.1 (page 73):

San Mateo County Storm Water Pollution Prevention Program
Town of Atherton
City of Belmont
City of Brisbane
City of Burlingame
~~City of Brisbane~~
Town of Colma
City of Daly City
City of East Palo Alto
City of Foster City
City of Half Moon Bay
Town of Hillsborough
City of Menlo Park

Staff Report Table 9.1 (page 74):

Marin County [e]
City of Belvedere
~~Black Point-Green Point~~
Town of Corte Madera
Town of Fairfax
City of Larkspur
City of Mill Valley
City of Novato
Town of Ross
Town of San Anselmo
City of San Rafael
City of Sausalito
~~Tamalpais-Homestead Valley~~
~~City~~ Town of Tiburon
~~City of Woodacre~~
Marin County

Staff Report Table 9.1 footnote (page 74):

[f] Only areas of San Francisco not served by the combined sewer system are subject to an urban ~~storm water~~ runoff permit.

Staff Report Table 10.5 (page 84):

	~~CAC-4~~	
Education and Outreach	CAC-~~4~~5	Provide outreach and training to pest control licensees regarding water quality issues as part of pest control business license registration and inspection programs.
	CAC-~~5~~6	Work with the California Department of Pesticide Regulation….

Staff Report page 111:

> …Based on the information obtained, the Water Board could restrict the use of certain pesticides until proven not to threaten water quality, such as by placing additional regulatory controls on pest control professionals or banning ~~sales or~~ certain applications within the San Francisco Bay Region.

Basin Plan Amendment page A-3:

> …For purposes of this strategy, "NOAEC" refers to the "no observed adverse effect concentration," which is the highest tested concentration of a sample that causes no observable adverse effect (i.e., mortality) to exposed organisms during an acute toxicity test….

Basin Plan Amendment page A-3 (other changes to this sentence are described on page 50):

> …Storm drains are owned and operated by ~~Bay Area~~ the Region's municipalities, industrial dischargers, large institutions (e.g., campuses), construction dischargers, and the California Department of Transportation (Caltrans)….

Basin Plan Amendment page A-7:

- Notify ~~the~~ U.S. EPA ~~Environmental Protection Agency~~ of potential deficiencies in product labels for products that threaten water quality;

Basin Plan Amendment page A-8:

- Obtain information necessary to determine whether water quality standards are or are likely to be met from pesticide product registrants, ~~the~~ U.S. EPA ~~Environmental Protection Agency~~, and other sources (conservative [i.e., protective] assumptions may be used to fill information gaps);

Basin Plan Amendment page A-10:

> …These requirements shall be included in permits no later than five years <u>after</u> ~~of~~ the effective date of this strategy….

Environmental Checklist page B-13:

> Other actions to occur with or without the Basin Plan Amendment include implementation of existing urban ~~storm water~~ runoff permit provisions regarding diazinon and pesticide-related toxicity and new development.

REFERENCES

CDPR et al. 1997. California Department of Pesticide Regulation, State Water Resources Control Board, and California Environmental Protection Agency, *Management Agency Agreement Between the State Water Resources Control Board and the Department of Pesticide Regulation*, signed by J. Wells, California Department of Pesticide Regulation; W. Pettit, State Water Resources Control Board; and J. Strock, California Environmental Protection Agency, March 1997, p. 32.

Moore and Waring 1996. Moore, A., and C. Waring, "Sublethal Effects of the Pesticide Diazinon on Olfactory Function in Mature Male Atlantic Salmon Parr," *Journal of Fish Biology*, 48:758-775, 1996.

NRC 2001. National Research Council, "Assessing the TMDL Approach to Water Quality Management," 2001.

SFEP 2005a. San Francisco Estuary Project, *Pesticides in Urban Surface Water, Urban Pesticide Use Trends Annual Report 2005*, prepared by TDC Environmental, March 2005.

SFEP 2005b. San Francisco Estuary Project, *Pesticides in Urban Surface Water, Annual Research and Monitoring Update 2005*, prepared by TDC Environmental, March, pp. 3 and 11 to 18.

Scholz et al. 2000. Scholz, N., N. Truelove, B. French, B. Berejikian, T. Quinn, E. Casillas, and T. Collier, "Diazinon Disrupts Antipredator and Homing Behaviors in Chinook Salmon (*Oncorhynchus tshawytscha*)," *Canadian Journal of Fisheries and Aquatic Sciences*, 57:1911-1918, 2000.

SWRCB 2004. State Water Resources Control Board, "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List," September 30, 2004, pp. 4-15.

SWRCB et al. 1997. State Water Resources Control Board, Alameda County Flood Control and Water Conservation District, and Alameda Countywide Clean Water Program, *Diazinon in Surface Waters in the San Francisco Bay Area: Occurrence and Potential Impact*, prepared by R. Katznelson, Woodward Clyde Consultants, and T. Mumley, San Francisco Bay Regional Water Quality Control Board, June 30, 1997.

USEPA 2000. U.S. Environmental Protection Agency, *Guidance for Developing TMDLs in California*, Region 9, January 7, 2000, pp. 4 to 6.

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USEPA 1985. U.S. Environmental Protection Agency, *Guidelines for Deriving Numeric National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses,* prepared by C. Stephan, D. Mount, D. Hansen, J. Gentile, G. Chapman, W. Brungs, PB 85-227049 Washington, D.C, 1985, pp. iv-vi and 1-57.

Weston et al. 2005. Weston, D. P., R. W. Holmes, J. You, and M. J. Lydy, "Aquatic Toxicity Due to Residential Use of Pyrethroid Insecticides," *Environmental Science & Technology*, ASAP Article, 2005. Web Release Date: October 19, 2005.

APPENDIX

This appendix contains responses to comments submitted by the Bay Area Stormwater Management Agencies Association and the City of San Jose regarding the March 2004 Final Project Report: *Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL) Final Project Report*. These responses were completed and distributed on December 16, 2004. They are reproduced here verbatim.

Response to Bay Area Stormwater Management Agencies Association April 12, 2004 Letter

Comment Letter Page 1

Clearly separate the TMDL from the Water Quality Attainment Strategy

Donald Freitas interpreted our report to imply that the TMDL is for diazinon only, not pesticide-related toxicity, and asked that we separate the TMDL from the Water Quality Attainment Strategy for pesticide-related toxicity. On the contrary, the TMDL is not strictly for diazinon. The TMDL addresses pesticide-related water quality impairment attributed to diazinon in urban creeks. The distinction is subtle but important. The impairment occurs because the Basin Plan's toxicity objective is not met in urban creeks. Consistent with pollution prevention principles, we will not propose to eliminate diazinon-related toxicity without considering the potential for our actions to result in new sources of toxicity. Therefore, the TMDL and the Water Quality Attainment Strategy are closely linked and cannot be separated.

Both types of numeric targets relate to the TMDL. The diazinon concentration targets relate directly to the diazinon problem, but by themselves, they may be insufficient to protect urban creeks from pesticide-related toxicity. They do not address potential interactions between diazinon and other chemicals that may contribute to toxicity, and the Basin Plan's toxicity objective is intended to address pollutant mixtures. The diazinon concentration targets also do not address the potential for the pesticides replacing diazinon to threaten water quality. For these reasons, we have proposed toxicity targets. Selecting multiple targets is consistent with National Research Council recommendations that biological criteria be used in conjunction with chemical and physical criteria to measure whether beneficial uses are achieved (National Research Council, *Assessing the TMDL Approach to Water Quality Management*, 2001). Because both types of numeric targets relate to the TMDL, allocations must be consistent with both types of targets, and the implementation plan must be directed toward achieving the resulting allocations.

D. Freitas objected to assuming that future pesticide-related toxicity may result from sources and pathways similar to those of diazinon. We do not assume that the sources and pathways of future pesticide-related toxicity will necessarily be the same as those of diazinon-related toxicity. However, because the foreseeable market changes in the near term relate to the diazinon phaseout, we reasonably assume that replacement pesticides

will be used for purposes similar to those for which diazinon has been used. Because we cannot predict what pesticide applications might threaten water quality in the future, we propose a broad Water Quality Attainment Strategy to ensure that, in any case, water quality will be protected.

Comment Letter Page 2

Separate the Implementation Plan from the TMDL

D. Freitas asserted that an implementation plan is not required for a TMDL and requested that we separate the implementation plan from the TMDL. The federal Clean Water Act does not explicitly require that implementation plans be adopted with TMDLs, but whether implementation plans are implicitly required is a matter of debate. Federal law requires that TMDLs, upon U.S. Environmental Protection Agency approval, be incorporated within Basin Plans (if not pursuant to Clean Water Act §303[d] then pursuant to §303[e], the continuing planning process). On the other hand, California's Porter-Cologne Water Quality Control Act (§13242) unquestionably requires that Basin Plans include implementation plans that specify the actions needed to meet water quality standards, time schedules to complete the actions, and surveillance measures to determine compliance with standards. In California, TMDLs are not effective until these implementation plans are adopted. Neglecting to adopt a TMDL implementation plan thwarts the intent of the Clean Water Act to restore and maintain the integrity of the nation's waters. Without implementation, TDML development would be nothing more than a planning exercise that wastes public resources.

We have identified one major source of diazinon and pesticide-related toxicity in urban creeks—storm drains, which are point sources subject to National Pollutant Discharge Elimination System (NPDES) permits. For a water body receiving only point source discharges, a TMDL could be considered self-implementing because federal regulations require NPDES permits to be consistent with TMDL wasteload allocations. Without an implementation plan that describes the nature of the permit requirements, the most likely means of ensuring consistency is to place the allocations directly into permits as numeric effluent limitations. By developing a TMDL and its implementation plan together, however, we are retaining the Water Board's authority and flexibility to describe how allocations are to be implemented. We are not ceding authority or discretion to anyone, including the U.S. Environmental Protection Agency, as D. Freitas suggested.

Regarding D. Freitas's reference to California's Porter-Cologne Water Quality Control Act (§13241 and §13242), the Water Board must consider several specific factors when establishing water quality objectives. However, we do not propose any new water quality objectives as part of the Water Quality Attainment Strategy; therefore, these requirements do not apply.

Comment Letter Page 3

Develop Allocations for all Sources of Diazinon and Separately Identify all Sources of Pesticide-Related Toxicity

D. Freitas asserted that we have not addressed all sources of pesticide-related toxicity. By far the most important source of pesticide-related toxicity in urban creeks is storm

drains. We acknowledge that some other negligible sources may also exist. If we do not to assign allocations to these *de minimus* sources, their allocations will effectively be zero. We prefer not to assign allocations for what we consider inconsequential sources. Without more information demonstrating that these insignificant sources pose water quality risks, we do not intend for the Water Quality Attainment Strategy to include specific actions to address them. If a source without an allocation were later found to be important, an allocation could be assigned in accordance with the adaptive management plan described in Section 11 (Monitoring and Adaptive Management). Adding an allocation through this process would require a Basin Plan Amendment.

Attachment

Comment 1

D. Freitas asked that we distinguish between the scopes of the Water Quality Attainment Strategy and TMDL. As explained above, the scopes cannot be separated. We have proposed one comprehensive Water Quality Attainment Strategy that meets all the requirements necessary for the TMDL. In fact, as explained in Section 1 (Introduction), the Water Quality Attainment Strategy meets the requirements for a TMDL for the urban creeks formally listed as impaired pursuant Clean Water Act §303(d)(1) and a TMDL for all other Bay Area urban creeks (see Table 5.1) pursuant to Clean Water Act §303(d)(3). Regardless of the TMDL requirements, the Water Board's authority to adopt the Water Quality Attainment Strategy comes from Clean Water Act §303(e) and Porter-Cologne Water Quality Control Act §13240. The §303(d) list does not constrain the Water Board's authority to amend the Basin Plan as needed.

Comment 2

D. Freitas asked that we use more-consistent terms throughout the report. We will review the report and strive to do so.

Response to City of San Jose April 12, 2004 Letter

Comment Letter Page 1

Introductory Comments

Carl Mosher noted shortcomings in available pesticide toxicity data and stated that, prior to adopting regulations, the Water Board should identify specific pesticides that impair urban creeks and their sources. We acknowledge that data availability varies among Bay Area creeks, as discussed in Section 2 (Water Quality Conditions) and stated in Section 5 (Project Description). Data are often lacking for many creeks because some municipal urban runoff agencies have not thoroughly characterized their receiving waters, a matter we can and will address through permit enforcement.

Our rationale for proposing actions to minimize the potential for future water quality impairment, as set forth in our report, is reasonable and compelling. Our findings will serve as the basis for a Basin Plan Amendment we intend to prepare. The Water Board may amend the Basin Plan whenever necessary to preserve water quality (Clean Water Act §303[e] and Porter-Cologne Water Quality Control Act §13240). Its authority is not limited to acting only after water quality standards have been violated and waters are

impaired. In addition, we do not need to name specific pesticides that impair beneficial uses before proposing a Water Quality Attainment Strategy. Such an approach would force us to wait for water quality standards to be violated before taking corrective actions.

C. Mosher also expressed a number of general concerns. In the responses below, we address his specific comments regarding the implementation burden to be placed on municipal urban runoff agencies, allocations pertaining to pesticide-related toxicity, the use of California Department of Fish and Game diazinon water quality criteria as numeric targets, and assertions that the our report misrepresents information.

Comment Letter Page 2

The proposed allocation scheme does not address upstream sources of diazinon

C. Mosher suggested that we propose allocations for sources other than municipal urban runoff agencies. We assign load and wasteload allocations to sources, not organizations or individuals responsible for the sources. By far the most important source of diazinon and pesticide-related toxicity in urban creeks is storm drains; therefore, we propose a wasteload allocation to storm drains. By law, municipal urban runoff agencies bear responsibility for storm drain discharges. However, Section 10 (Strategy and Proposed Actions) also includes actions to be taken by the Water Board, the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, County Agricultural Commissioners, the California Department of Consumer Affairs, the University of California, and private entities.

Section 6 (Source Assessment) and Section 8 (Linkage Analysis) describe how diazinon and other pesticides enter storm drain systems. Various parties are involved, including private citizens, structural pest control and landscape maintenance professionals, and to a far lesser extent, agricultural pesticide users. When these parties use pesticides such that the pesticides enter storm drain systems, the resulting discharges are the responsibility of municipal urban runoff agencies. There is no need for a separate allocation. As for specifying allocations for construction and industrial activities that do not discharge to storm drain systems, we have no evidence that such activities result in meaningful pesticide discharges. Not assigning allocations is a conservative approach in that it is equivalent to assigning allocations of zero.

Comment Letter Page 3

Separating the TMDL and the Water Quality Attainment Strategy (WQAS)

C. Mosher asserted that the TMDL can only address diazinon, not pesticide-related toxicity. We believe the Water Quality Attainment Strategy and TMDL are consistent with the §303(d) list of impaired waters. Our 2002 Preliminary Project Report reflected concerns about pesticide-related toxicity that resulted in Bay Area urban creeks being placed on the §303(d) list. We did not change the scope of our project with the 2004 Final Project Report, but we did revise the report to clarify our intentions. Consistent with pollution prevention principles, we do not intend to act to eliminate diazinon toxicity without considering the potential for such actions to result in new sources of toxicity. Therefore, the TMDL is an integral component of the Water Quality Attainment Strategy

and cannot be separated from it. All the implementation actions listed in Section 10 (Strategy and Proposed Actions) relate to both the Water Quality Attainment Strategy and TMDL.

Proposed numeric toxicity targets for diazinon in Bay Area urban creeks go beyond basis for the 303(d) listing

C. Mosher objected to our proposed toxicity targets because the §303(d) list only refers to diazinon. However, targets need not be limited to the specific pollutants identified on the §303(d) list. Our selection of multiple targets is consistent with National Research Council recommendations that biological criteria be used in conjunction with chemical and physical criteria to measure whether beneficial uses are achieved. As pointed out by the comment, U.S. Environmental Protection Agency guidance states that that targets should equate to attainment of water quality standards. In this case, the applicable water quality objective is the narrative toxicity objective. There is no numeric objective for diazinon. Therefore, the proposed toxicity targets relate directly to the applicable water quality standard.

Comment Letter Page 4

Page 13

C. Mosher requested graphics illustrating the data presented. The information in our report is commensurate with the detail provided by the cited reference (Alameda Countywide Clean Water Program and Alameda County Flood Control and Water Conservation District, *Characterization of the Presence and Sources of Diazinon in the Castro Valley Creek Watershed*, June 1997). We will include a copy of that report in the administrative record. Our description of the study's findings is intended to be informative, but it does not directly affect the proposed targets, allocations, or implementation plan; therefore, further elaboration is unnecessary.

Page 34, 35, Page 26

C. Mosher pointed to text describing several important information gaps as evidence that more information is needed before the Water Board takes a regulatory action. However, in our report, we make a compelling case that some diazinon replacements (pyrethroids, in particular) may pose serious concerns for water quality. The Water Board must balance available information against apparent uncertainties before it acts. Because our mission is to restore and maintain the integrity of our region's waters, we propose regulatory actions to adopt an implementation plan that protects beneficial uses and ensures that information gaps will be closed.

Page 61

C. Mosher asked that we clarify in the text that the U.S. Environmental Protection Agency's water quality criteria for diazinon are draft criteria. (The California Department of Fish and Game's criteria are final.) We will, and as requested, we will also include the word "freshwater" when referring to the water quality criteria.

Comment Letter Page 5

Page S-2, Page 58

C. Mosher noted that urban creek water samples exceeding the proposed toxicity targets may not be sufficiently toxic to allow Toxicity Identification Evaluations to be completed. Setting the proposed toxicity targets at $TU_a = 1$ and $TU_c = 1$ is consistent with the Basin Plan's narrative toxicity objective. We agree that samples close to 1 TU may not be toxic enough to complete rigorous Toxicity Identification Evaluations. This challenge is not new. Our proposed Water Quality Attainment Strategy calls on municipal urban runoff agencies to specify the circumstances that would trigger Toxicity Identification Evaluations in a monitoring plan (see Section 11 [Monitoring and Adaptive Management]).

C. Mosher also brought up the potential for pollutants other than pesticides to cause toxicity. We acknowledge the potential for non-pesticide toxicity in Section 5 (Numeric Targets) and Section 11 (Monitoring and Adaptive Management). Toxicity caused by pollutants other than pesticides is beyond the scope of this Water Quality Attainment Strategy.

C. Mosher questioned the link between the proposed diazinon targets (California Department of Fish and Game criteria) and *Ceriodaphnia dubia* toxicity. However, we are not required to link the diazinon concentration targets to *Ceriodaphnia dubia* toxicity. As discussed in Section 8 (Linkage Analysis), we must link the proposed targets to identified sources. The targets themselves may or may not be linked to each other. In this case, the diazinon concentration targets and the toxicity targets were derived separately and are intended to serve different purposes. Moreover, we are not proposing the diazinon water quality criterion of 50 ng/l as a water quality objective as C. Mosher suggested.

Page S-2

C. Mosher requested an explanation for moving forward with the Water Quality Attainment Strategy and TMDL before adopting numeric water quality objectives for diazinon. Other regions (specifically, the Central Valley region) have adopted the California Department of Fish and Game's water quality criteria as water quality objectives for certain waters. In the Bay Area, there is no need for a numeric diazinon objective because the existing narrative toxicity objective is adequate to protect beneficial uses. Moreover, because the U.S. Environmental Protection Agency's phaseout of diazinon is expected to eliminate almost all Bay Area diazinon use, a numeric diazinon objective would serve little purpose.

C. Mosher asked that we consider the U.S. Environmental Protection Agency's draft diazinon water quality criteria. In Section 7 (Numeric Targets), we considered the technical merits of both the California Department of Fish and Game criteria and the U.S. Environmental Protection Agency criteria. We concluded that both sets of water quality criteria could reasonably serve as TMDL targets. We then selected the California Department of Fish and Game criteria for reasons explained in the report.

Comment Letter Page 6

Page 10

C. Mosher objected to reporting the 7-day LC_{50} for exposure of *Ceriodaphnia dubia* to diazinon as 100 ng/l and questioned whether diazinon toxicity depends on exposure duration. The reference we cited (Alameda County Urban Runoff Clean Water Program, *Identification and Control of Toxicity in Storm Water Discharges to Urban Creeks*, March 7, 1995) contains the results of reference tests S.R. Hansen & Associates completed using diazinon concentrations from 80 ng/l to 10,000 ng/l in "clean" laboratory water. After a 7-day exposure, S.R. Hansen & Associates observed no *Ceriodaphnia dubia* mortality at 80 ng/l and 100% mortality at 156 ng/l. Therefore, the LC_{50} was between these concentrations (roughly 100 ng/l). This study was not extensive, and others could find different results. Nevertheless, diazinon toxicity is related to the duration of exposure (Alameda County Urban Runoff Clean Water Program, *DUST Marsh Special Study FY 93-94*, January 27, 1995). The data in Table 2.1 are only for informational purposes and do not affect the proposed targets, allocations, or implementation plan.

Page 10, Page 15-footnote h

C. Mosher requested more information about the Crandall Creek Toxicity Identification Evaluation (Alameda County Urban Runoff Clean Water Program, *DUST Marsh Special Study FY 93-94*, January 27, 1995). That study involved one water sample. The average of two diazinon concentration measurements for the sample was about 250 ng/l. On the basis of a dilution series of diazinon concentrations in "clean" laboratory water, the 4-day LC_{50} was roughly 400 ng/l (1.7 x the LC_{50} of 250 ng/l—the 300 ng/l we reported was an error). The study concluded that, within the range of the study's uncertainty, diazinon concentrations explained the toxicity found in the sample. The study acknowledged that other toxic substances could also be in the sample at sub-toxic concentrations. In fact, the sample contained a substance that appeared to be a pyrethroid. Due to analytical constraints, however, the presence of a pyrethroid was not confirmed. The study, which we will include in the administrative record, supports our conclusion that diazinon has caused toxicity in urban creeks.

C. Mosher asked that the text clarify that the California Department of Fish and Game's diazinon water quality criterion of 50 ng/l does not reflect the diazinon concentration that adversely affects *Ceriodaphnia dubia*. Section 7 (Numeric Targets) explains that the water quality criteria are derived from toxicity data for a number of species, not just *Ceriodaphnia dubia*.

Comment Letter Page 7

Page 16

C. Mosher asked some specific questions in the context of the key points at the end of Section 2 (Water Quality Conditions). These key points are intended to provide a brief summary. The statement that Toxicity Identification Evaluations using *Ceriodaphnia dubia* concluded that diazinon caused the toxicity is a generalization based on the preceding text. Diazinon was the primary cause of toxicity by far, even though other toxic substances could also have been present in the samples tested. The scopes of the

Toxicity Identification Evaluations varied and are described in the cited references, which will be included in the administrative record.

Page 37, Page 58
C. Mosher asserted that toxicity in urban creeks may not be due to diazinon. However, available information overwhelmingly supports our conclusion that diazinon has caused most of the toxicity observed in Bay Area urban creeks since the 1990s. We are aware of no information that refutes this conclusion. We propose toxicity targets in addition to diazinon concentration targets because we acknowledge that other pollutants, especially other pesticides, can potentially contribute to toxicity.

Page 58, Page 59
C. Mosher asserted that all pollutants contributing to urban creek toxicity must be identified before moving forward with the Water Quality Attainment Strategy. Our report identifies diazinon as the pollutant primarily responsible for the toxicity observed in Bay Area urban creeks. We do not claim that no other pollutants contribute to the observed toxicity; however, little information is available about such contributions and we believe them to be relatively minor at this time. The proposed toxicity targets account for such uncertainties. We do not need to specifically identify all pesticides or other pollutants causing or contributing to toxicity before implementing management actions to prevent toxicity. Section 11 (Monitoring and Adaptive Management) describes monitoring to identify pesticides other than diazinon that may, now or in the future, contribute to toxicity. Based on available information, we propose to implement the Water Quality Attainment Strategy now to restore water quality and prevent future impairment. We can modify the implementation plan in the future if new information about specific toxic substances becomes available and demonstrates a need to revise the Water Quality Attainment Strategy.

C. Mosher suggested that a diazinon concentration of 440 ng/l (the 2-day LC_{50} for *Ceriodaphnia dubia*) be used to screen creeks for toxicity. We considered the advantages and disadvantages of basing numeric targets on single-species toxicity tests (see Table 7.2). Using a diazinon concentration of 440 ng/l as a screening level for toxicity is inappropriate because doing so may not protect all species, may not adequately account for chronic effects, and may not account for potential chemical interactions. The California Department of Fish and Game's water quality criteria are far below 440 ng/l, and water quality criteria need to be met to protect aquatic life.

Comment Letter Page 8
Page 61
C. Mosher characterized our explanation of the differences between the California Department of Fish and Game and U.S. Environmental Protection Agency water quality criteria as misleading. Nevertheless, proposing lower diazinon concentration targets is more protective than proposing higher targets and provides a greater inherent margin of safety. We will revise the text as follows:

> The California Department of Fish and Game criteria are lower because the U.S. Environmental Protection Agency considered some different ~~an additional~~ acute toxicity studies~~y~~ and did not rely on a particular chronic toxicity study (CDFG 2001).

Comment Letter Page 9

Page 61

C. Mosher pointed out an error in our summary of two studies and noted that the U.S. Environmental Protection Agency did not use these studies in deriving its water quality criteria. Whether the U.S. Environmental Protection Agency relied on certain studies for its criteria has no bearing on whether we can cite the studies in our report. However, we should cite the information correctly. According to the studies, diazinon exposure at 1,000 ng/l—not 100 ng/l—could cause sub-lethal effects in fish. Considering this correction, the studies no longer support the point we made in our report; therefore, we will remove the sentence about the effects of diazinon on salmonids.

Comment Letter Page 10

Page 61

C. Mosher suggested that other regions relied on the California Department of Fish and Game diazinon water quality criteria instead of the U.S. Environmental Protection Agency's draft criteria because the U.S. Environmental Protection Agency's draft criteria were unavailable. To the contrary, although the U.S. Environmental Protection Agency formally published its draft criteria in December 2003, the draft criteria had been widely circulated since August 2000, well before the other regions adopted their TMDLs. In any case, the U.S. Environmental Protection Agency has still not formally adopted these water quality criteria, and we are free to exercise our own independent judgment in proposing numeric targets.

Page 72

C. Mosher asserted that the proposed diazinon concentration targets (the California Department of Fish and Game criteria) are overly conservative and not based on the best available science. However, U.S. Environmental Protection Agency staff wrote the following regarding the California Department of Fish and Game criteria (Heidi Bell, April 3, 2002):

> The approach for the derivation of the diazinon aquatic life criteria (ALC) by the California Department of Fish and Game (DFG) is consistent with EPA's guidelines for deriving ALC. Although the DFG criteria values are different from those found in EPA's diazinon ALC, the DFG approach is reasonable and these differences are within the range of discretion provided by the guidelines methodology.
>
> …since [EPA] criteria serve as recommendations, it is within the purview of a state to derive a criteria [*sic*] which may be more stringent than that recommended by EPA….

We will cite this U.S. Environmental Protection Agency memorandum in our report and include it in the administrative record.

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C. Mosher suggested that the report inadequately supports the linkage between the toxicity and diazinon concentration targets. He also pointed out that toxicity may not go away when diazinon concentrations decline. He advocated separation of the toxicity and diazinon strategies. The proposed targets need not be linked to each other. As discussed in Section 8 (Linkage Analysis), we must link the targets to the sources, not to each other. Regarding our expectations for meeting the toxicity targets, we will revise the text for clarity as follows:

> Because available information ~~does not~~ indicate<u>s</u> that <u>diazinon, not other pesticides, causes almost all existing</u> toxicity ~~currently occurs~~ in urban creeks ~~due to pesticides other than diazinon~~, the toxicity targets are also expected to be met shortly after diazinon is phased out.

The targets and implementation strategies for toxicity and diazinon concentrations cannot be separated. We agree that the Water Quality Attainment Strategy cannot focus only on diazinon. A strategy that addresses diazinon cannot ignore potential interactions with other pesticides or potential substitutions of replacement pesticides. Therefore, our implementation plan does not address diazinon by itself (see Section 11 [Strategy and Proposed Actions]).

Final Comment
C. Mosher suggested including the California Department of Fish and Game diazinon water quality criteria report as an appendix to our report. As with all references cited in our report, we will include this one in the administrative record. We see no reason to append it to our report.